PHYSICAL, CHEMICAL, AND BIOLOGICAL OBSERVATIONS IN THE EASTERN TROPICAL PACIFIC OCEAN SCOT EXPEDITION, APRIL-JUNE 1958

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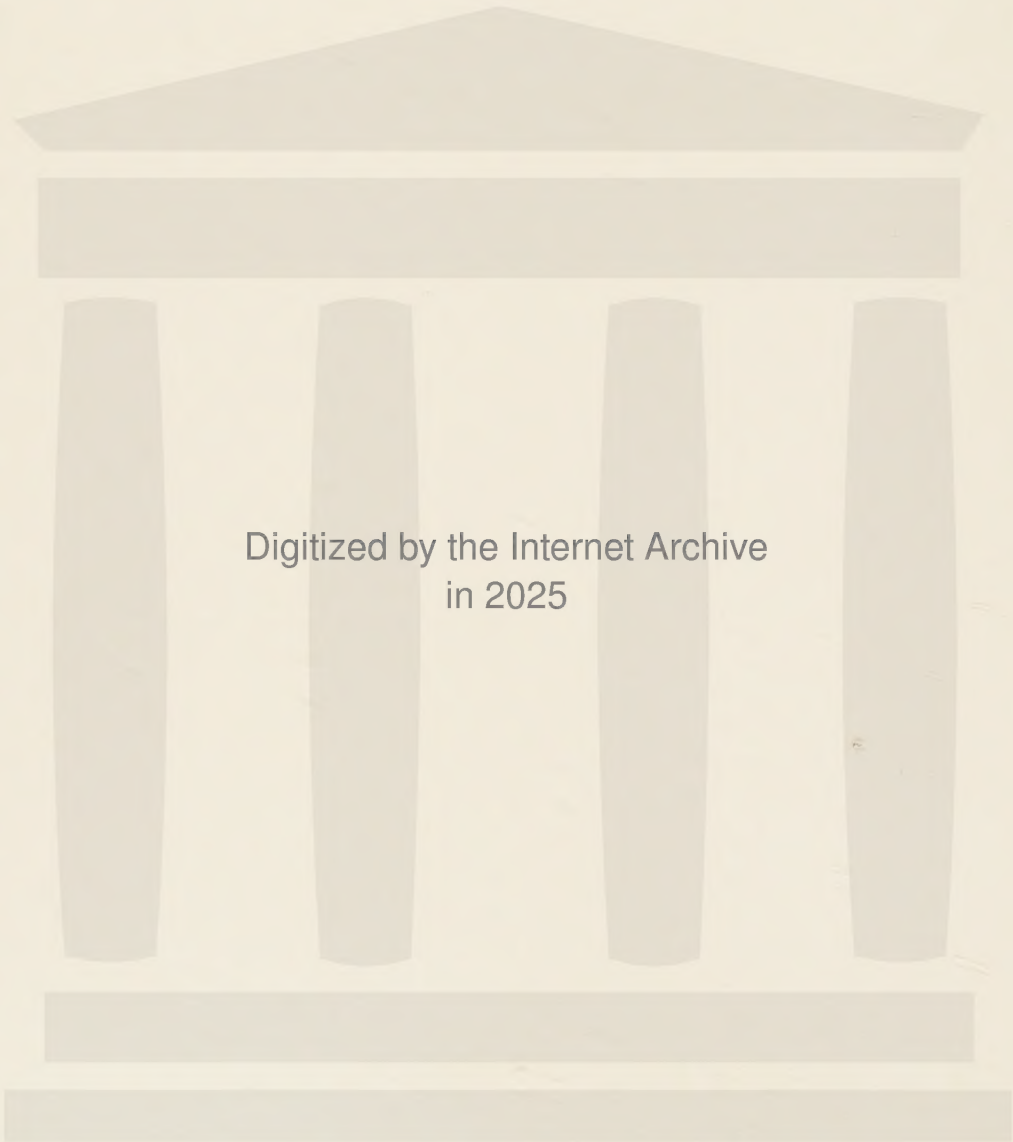
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PHYSICAL, CHEMICAL, AND BIOLOGICAL OBSERVATIONS IN THE EASTERN TROPICAL PACIFIC OCEAN SCOT EXPEDITION, APRIL-JUNE 1958

By

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ABSTRACT

This report describes the oceanographic methods used, and lists in tabular form the results obtained, on Expedition SCOT in the eastern tropical Pacific. This expedition, conducted in April, May and June, 1958, by the Scripps Institution of Oceanography with the co-operation of the Inter-American Tropical Tuna Commission, was the first of a series of cruises devoted to the oceanography of the United States tropical tuna fishing region. These cruises are part of a program of investigations carried out by the Scripps Institution under contract to the U. S. Bureau of Commercial Fisheries.

The main object of the expedition was to study the distribution of ocean properties in the region as a whole at a different season and with greater coverage than in any former expedition. The survey extended from San Diego, California, to latitude 5°N.

Properties measured or computed were: weather conditions, temperature, salinity, density, thermosteric anomaly, dynamic height anomaly, dissolved oxygen concentration, inorganic phosphorus concentration, the attenuation of diffuse submarine daylight, incident solar radiation, chlorophyll a, standing crop of zooplankton, standing crop of small nekton, surface current direction and velocity (by GEK), and primary production rate. Additional information presented includes a summary listing of bathythermograph observations and of organisms captured in night-lighting operations. Some preliminary results of analysis of data, including experiments made aboard ship on the growth of ocean phytoplankton in response to various combinations of added chemicals, are given.

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PHYSICAL, CHEMICAL, AND BIOLOGICAL OBSERVATIONS IN THE EASTERN TROPICAL PACIFIC OCEAN SCOT EXPEDITION, APRIL-JUNE 1958

SCOT (Scripps Cooperative Oceanography and Tuna) Expedition, carried out between 23 April and 20 June 1958, in eastern tropical Pacific waters, was a cooperative venture utilizing funds and personnel of the Scripps Institution of Oceanography (Tuna Oceanography Research Project) and the Inter-American Tropical Tuna Commission. The reference number of the cruise for Scripps Institution purposes is TO-58-1. Funds for the Scripps Institution group were provided by the U. S. Bureau of Commercial Fisheries under Department of Interior Contract 14-19-008-9354. The Scripps research vessel Spencer F. Baird, Captain A. W. Phinney commanding, was employed. The main objectives of the expedition were:

a. to augment our knowledge of the seasonal and regional variations in primary production and standing crops of phytoplankton, zooplankton, and nekton, and their relationships to tuna abundance and to the physicochemical environment in areas of interest to the American tuna fisheries;

b. to study the abundance and distribution of tuna eggs and larvae in waters west of the Mexican mainland north of 17°N latitude;

c. to study the physical, chemical, and biological features common to oceanic "fronts" in the vicinity of southern Baja California.

The Scripps Tuna Oceanography Research (STOR) group was primarily concerned with objective (a). The expedition data, together with similar information gathered on previous and subsequent investigations will provide the basis for an evaluation of the biological events in the ocean environment with special reference to the distribution and behavior of tunas.

Objectives (b) and (c) were of particular interest to scientists of the Inter-American Tropical Tuna Commission since such work forms an integral part of their continuing field research program.

It was originally intended that the latter portion of the expedition (Acapulco-San Diego) would be carried out under the leadership of Dr. Bell M. Shimada of the Inter-American Tropical Tuna Commission, and devoted mainly to the Commission's objectives. Unfortunately, the death of Dr. Shimada and his colleague, Mr. Townsend Cromwell, en route to join the expedition, prevented the complete fulfillment of these objectives. Objective (c) was abandoned. Dr. Maurice Blackburn, STOR Project Leader, took charge of the work and attained objective (b) before returning to San Diego.

Figure 1 shows the expedition track.

The following is a list of scientific personnel who participated in the expedition:

**Mr. Carl M. Boyd, Research Assistant, Scripps Institution
Dr. Maurice Blackburn, Associate Research Biologist, Scripps Institution (Expedition Leader, Acapulco-San Diego)
*Mr. Donald E. Hollingshead, Laboratory Technician, Scripps Institution
*Mr. Robert W. Holmes, Assistant Research Biologist, Scripps Institution (Expedition Leader, San Diego-Acapulco)
Mr. Witold L. Klawe, Scientist, Tuna Commission
Mr. John M. Jaynes, Marine Technician, Scripps Institution
Mr. Robert J. Linn, Senior Marine Technician, Scripps Institution
Mr. A. Dougall Reith, Senior Marine Technician Scripps Institution
*Mr. Alan C. Smith, Marine Technician, Tuna Commission
Mr. Paul N. Sund, Scientist, Tuna Commission
*Dr. William H. Thomas, Assistant Research Biologist, Scripps Institution

* San Diego-Acapulco
** Acapulco-San Diego

SUMMARY OF PRELIMINARY RESULTS

While most of the data obtained on SCOT have not yet been examined in detail, certain of the biological relationships have been examined cursorily and are presented below to illustrate some of the types of relationships that are being examined. More detailed and rigorous expositions will appear elsewhere.

Interrelationships of Standing Crops - Phytoplankton, Zooplankton, and Nekton (R. W. Holmes and M. Blackburn)

In figure 2 surface chlorophyll a concentration is

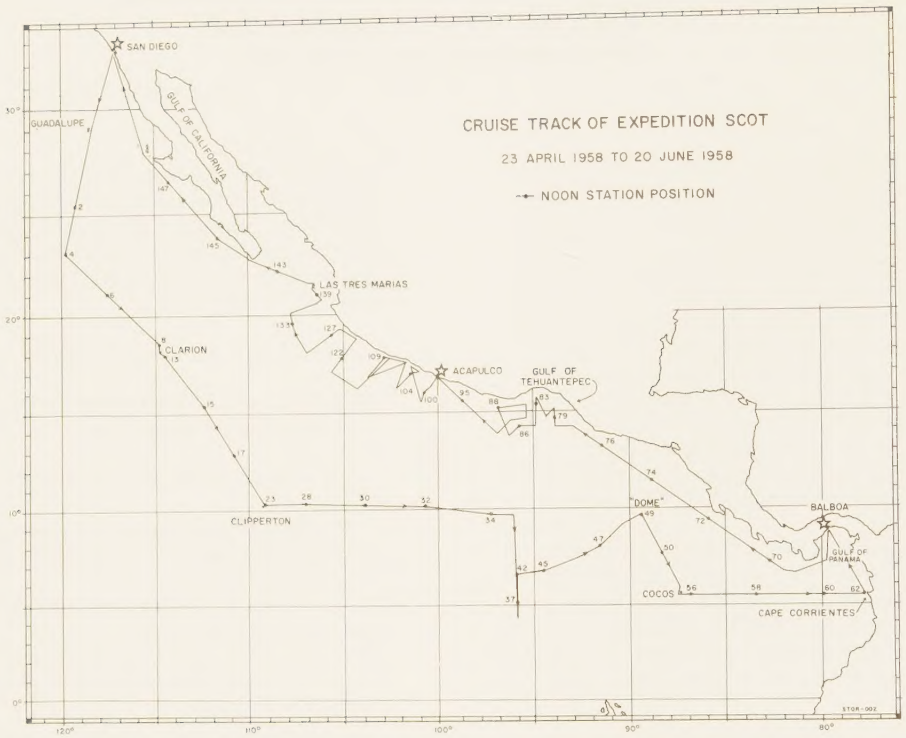

Figure 1. Track of SCOT Expedition showing noon stations.

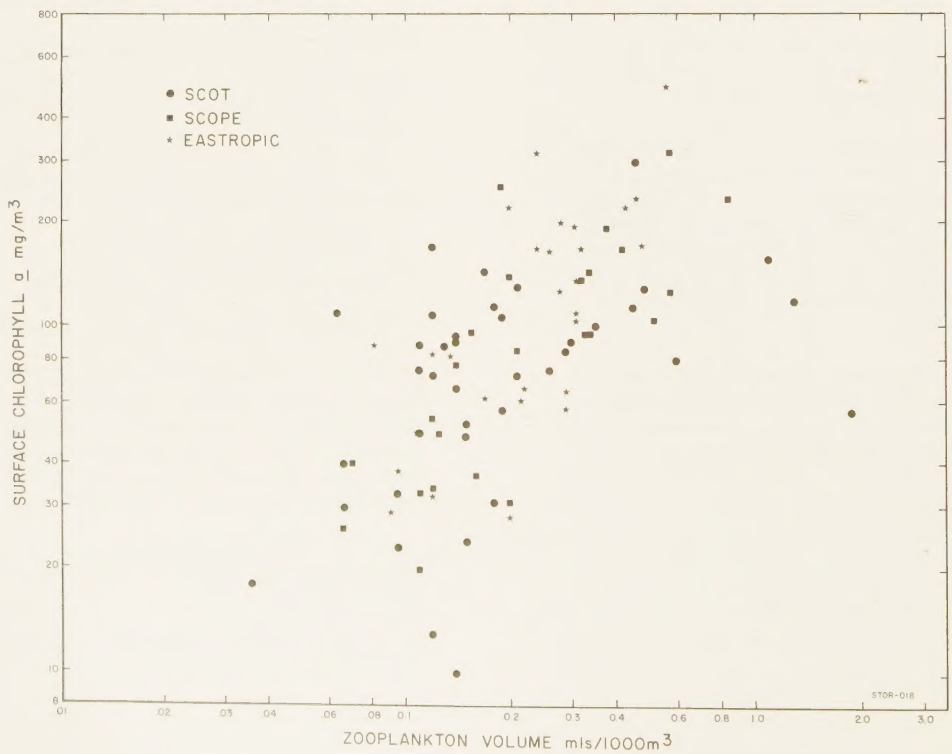

Figure 2. Surface chlorophyll a-zooplankton volume (small organisms) relationship for EASTROPIC, SCOPE, and SCOT.

presented as a function of zooplankton volume for data obtained on SCOT, SCOPE, and EASTROPIC expeditions. The SCOT data increase the significance of the relationships previously observed (SCOPE and EASTROPIC) and show that seasonal variations do not alter the relationship. The water-column chlorophyll a (mg/m^2) and zooplankton-volume relationship is presented in figure 3. Again a significant relationship is obtained and the coefficient of variation is nearly identical in the two cases. These data strengthen our previous belief that the zooplankton is autocthonous and that seasonal variations in the relationship are quite small.

Figure 4 is a plot of zooplankton volume against nekton volumes obtained at night stations on SCOT Expedition. The zooplankton data, like those in figures 2 and 3, refer to standard oblique meter net hauls with 450 m of wire out and are made available by courtesy of the Inter-American Tropical Tuna Commission. The nekton volumes refer to standard hauls. This relationship is statistically significant. It may be concluded from figures 2-4, for the general area and season covered by SCOT, that:

1. The biological events leading to the production of a particular crop of nekton (tuna food) occur in the same locality as the crop itself, and

2. The standing crops at the lower trophic levels are replaced about as fast as they are grazed down by those above.

Zooplankton Standing Crops Around Islands
(M. Blackburn)

Observations made on SCOT Expedition around Clarion, Clipperton, and Cocos Islands, with the help of Messrs. Klawe and Sund of the Inter-American Tropical Tuna Commission, form a small but interesting addition to the study of zooplankton standing crop gradients around ocean islands. Stations were occupied on opposite sides of each island at a distance of about 11 miles from it and a third station was occupied at a distance of about half a mile from the island; each set of stations was occupied in the daylight and again at night. Catches made in oblique hauls of nets are not altogether comparable because the inshore hauls had to be made at shallower depths, but catches from surface horizontal tows, which show similar trends, are comparable. The results of surface tows, in displacement volumes ($ml/1000m^3$), may be summarized as follows; arrowheads indicate apparent gradients of increasing crop away from the island (Clarion) or towards it (Clipperton, Cocos).

CLARION ISLAND

Day	12 ←	4 →	10
Night	37 ←	19 →	36

CLIPPERTON ISLAND

Day	50 →	85 ←	15
Night	173 →	188 ←	55

COCOS ISLAND

Day	58 →	152 ←	70
Night	138 →	210 ←	95

Oceanographic Survey of Gulf of Tehuantepec
(M. Blackburn)

The period May 27 - June 2 of SCOT Expedition was devoted to a survey of the Gulf of Tehuantepec in southern Mexico, an area in which yellowfin tuna aggregate in winter and spring. This area has been selected for intensive study, by means of cruises and moored stations, over a one-year period; the only previous organized oceanographic work was for a few days in December 1955, during EASTROPIC Expedition. It is frequently disturbed by offshore (transisthmian) winds during the fishing season, which suggests both the feasibility and the practical need of some system of forecasting tuna distribution from wind conditions. Other interesting features of the area are that it is in the warmest part of the eastern Pacific and a poor area for skipjack tuna.

The Eastropic observations indicated the presence of a thermal dome, with thermocline top at 10 m below the surface at about 15°10'N, 95°30'W. The SCOT hydrocast and BT data revealed the presence of a thermal ridge with axis along 95°W between about 14°30' and 15°50'N, with thermocline top at about 20 m. To the west of the ridge the thermocline fell sharply by some 50 m into a hollow at about 96°30', beyond which it rose in a rather ill-defined way. Isopleths of salinity, thermosteric anomaly, oxygen, and inorganic phosphorus showed the same trends as the isotherms. Surface temperatures, which over much

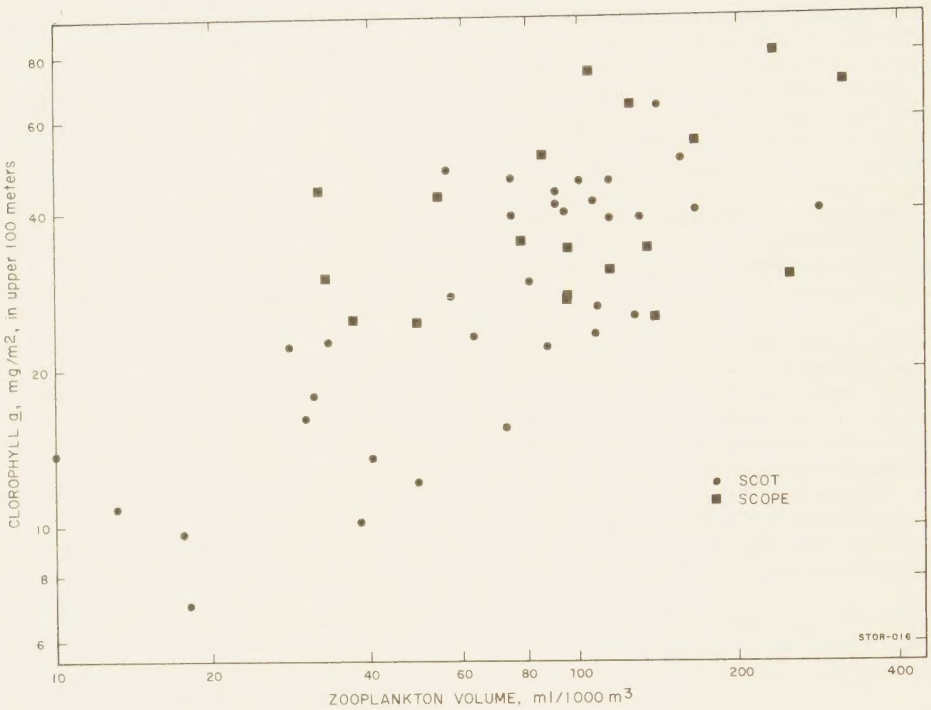

Figure 3. Water column chlorophyll a-zooplankton volume (small organisms) relationship for SCOPE and SCOT.

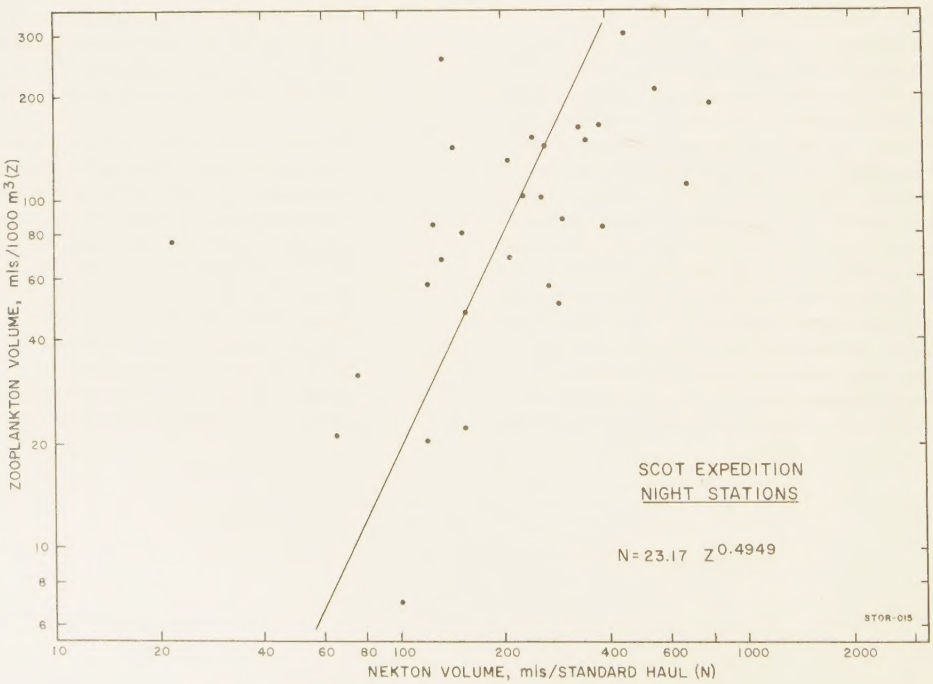

Figure 4. Regression of nekton volume, including jellies, standardized to a haul time of 65 minutes, on zooplankton volume (small organisms).

of the Gulf were between 30° and 31°C, were below 28°C at the top of the thermal ridge, where surface phosphorus concentrations were also higher than to the east or west. Surface circulation measured by GEK was in good agreement with that indicated by the dynamic topography, especially between the above-mentioned ridge and hollow where it was of the order of 1 to 2 kt in a southwesterly direction. The distribution of zooplankton standing crop was what might be expected if a crop recently produced on the ridge were in process of transportation downcurrent.

The area is to be resurveyed further.

Experimental Assessment of Phytoplankton-limiting Nutrients and the Culturing of Pelagic Phytoplankton (W. H. Thomas)

At SCOT Stations 4 and 49 (figure 1) 5-gallon water samples were taken at a depth of 10 m. Station 4 was located in the oligotrophic area west of Baja California and Station 49 was located in the eutrophic "Dome" area off Central America. Fifty-ml aliquots of these samples were dispensed into forty-two 125-ml flasks to which suspected nutrients were added in various combinations. Fourteen such treatments were set up in triplicate. The nutrients used were N, P, Si, trace elements, soil extract, purines and pyrimidines, and amino acids. After addition of nutrients the flasks were incubated at 25°C and were illuminated continuously at 600-900 foot-candles. The response of the phytoplankton in each flask was estimated at daily intervals by examination with the naked eye and by microscopic examination. The latter task proved quite feasible in the calm weather experienced. A millipore filter slide was made initially to determine which phytoplankton genera were the dominants in the original sample.

One of the purposes of these experiments was to determine which nutrients might be limiting in these waters. If the response to a given single nutrient was greater than the response to any other, then presumably the former would be the more likely limiting nutrient. If, when a given nutrient was omitted from a complete mixture and the response was less than in the complete mixture, then the omitted nutrient might be limiting. Another purpose of these experiments was the establishment of cultures of truly pelagic phytoplankton which could be used for photosynthesis and nutritional studies.

The first experiment (Station 4) was started on April 26, 1958. Approximately 500 cells per liter were found in the original water. The following genera were observed on the Millipore slide: Navicula, Ditylum, Coscinoduscus, Ceratium, Dinophysis, Gonyaulax, Peridinium. A small unidentified pennate diatom was the most prevalent organism seen, however. None of these organisms grew in any treatment. After 3 days cultures containing the complete supplement (N, P, Si, trace elements, soil extract) plus purines, pyrimidines, and amino acids, were visibly turbid owing to intense bacterial growth. After 5 days very small green flagellates were seen in these cultures. These organisms were also observed after 6 days in cultures containing the complete supplement without purines, pyrimidines, or amino acids. They also developed in the treatment in which phosphate was omitted from the complete supplement. Nothing developed in the other 10 treatments containing no additions or nutrients added singly, or when N, Si, trace elements, or soil extract were respectively omitted from the complete mixture. Since none of the more prevalent organisms seen in the original sample grew, the experiment did not show what factors might be limiting the major portion of the phytoplankton. The small flagellate was transferred to fresh complete medium and persisted through several subcultures.

The second experiment was started on May 13, 1958. Five hundred thousand cells per liter were found in the original water sample, which was visibly green. The dominant genera were Nitzschia, Rhizosolenia, and Chaetoceros. Other diatoms seen on the Millipore slide were Navicula and Planktoniella. About 10-20 percent of the population consisted of dinoflagellates of the genera Gymnodinium and Peridinium. Ceratium and Gonyaulax were also seen in net hauls.

The results of this experiment are shown in table 1.

No growth occurred in the second experiment when nothing was added or when nutritional factors were added singly, with the exceptions of the treatment in which soil extract was added alone and possibly in the trace element treatment. Growth occurred in all the combination type treatments, but no diatoms developed in cultures containing no added Si, trace elements, or soil extract. Since diatoms did grow in cultures containing no added N or P, it is possible that these elements were not limiting and that Si, trace elements, and the components of soil extract were limiting. However, one of the dominant diatoms, Rhizosolenia, failed to grow at all. It is interesting

that the dinoflagellate Gymnodinium succeeded the diatom growth or appeared quite late in the experiment. This is reminiscent of the way in which dinoflagellates succeed diatoms during the summer in temperate waters. Presumably diatoms or their decomposition products supply some nutritional factor to dinoflagellates. Bacterial turbidity apparently prevented most phytoplankton from growing in the two treatments containing purines, pyrimidines, or amino acids.

In this experiment two of the three dominant diatoms (Nitzschia and Chaetoceros) and one of the two dominant dinoflagellates (Gymnodinium) grew. These three organisms have been carried through several subcultures in the complete medium made up with the original sea water and have now been inoculated into various enriched sea water media in routine use at Scripps. All three algae were successfully brought back from SCOT Expedition and are growing in our culture room.

TABLE 1

Growth of pelagic phytoplankton after the addition of nutrients to water samples collected at 10 m depth at SCOT Station 49 ("Dome")

Addition	Days						
	3	4	6	8	10	12	15
None	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0
Si	0	0	0	0	0	0	0
Trace Elements (TE)	0	0	0	±	0	±	±
Soil Extract (SE)	0	0	0	±, Ni	±, Ni	±, G	±, G
Complete (N, P, Si, TE, SE)	0	0	±, Ni, F	+	±, Ni	+, Ni, G	+, G
Complete minus N	0	0	0	±, Ni	+	±, G	0
" " P	0	0	+, Ni	++, Ni	++, Ni, Ch, F	+, N, G, F	+
" " Si	0	0	0	±	0	+, G	+, G
" " TE	0	0	0	0	0	++, G	++, G
" " SE	0	0	0	±	0	±, G	±, G
Complete plus purines and pyrimidines	T	T	T	±, T	+, T	+, T, G	++, T
Complete plus amino acids	T	T	T	±, T	+, T	+, T, F	0

Growth:

0 = no growth
± = questionable growth
increasing + marks = increasing amounts growth
T = bacterial turbidity

Organisms observed microscopically:

(If no symbol, none were seen)
Ni = Nitzschia
Ch = Chaetoceros
G = Gymnodinium
F = unidentified small flagellates

Animals from Night-Light Collections (W. L. Klawe)

The results of the dipnetting under the night light (see methods) are shown in table 2. An effort to classify to the specific level was made only in the case of juvenile tunas. Tunas collected during this expedition are: Katsuwonus pelamis, Euthynnus lineatus, and Auxis thazard. Organisms which were observed and recognized beyond any doubt, but not collected, are included in this table. Most of the fish caught under the night light were juvenile forms, but this is not true in all cases as many Myctophidae, Hemiramphidae, Exocoetidae, and some others were adult individuals. One animal has been omitted from the table. It is the ubiquitous Halobates which was observed at all night stations.

PROCEDURES

Regular Forenoon Stations

At approximately 1030 (local time) each day a station was occupied. The general procedure at these stations was as follows:

1. 900 ft bathythermograph lowering accompanied by general weather observations.

2. Nansen bottle cast to a depth of approximately 1000 m. The water samples were employed for the determination of salinity, oxygen and inorganic phosphorus, all of which were analyzed on shipboard.

3. 50-0 m phytoplankton net haul. A 17-cm truncate net with a mesh size of 32μ was employed.

4. Two plastic sampler casts, each to a depth of about 100 m. The samples were used for productivity studies and for chlorophyll a determinations.

5. Oblique zooplankton meter-net tow to a depth of about 300 m.

6. Surface zooplankton meter-net tow.

7. Submarine photometer lowering, to approximately 100 m.

Regular Night Stations

It was the practice to occupy a station each night, generally commencing at midnight (local time). The general procedure was as follows:

1. Oblique nekton net tow to depth of about 90 m.

2. Oblique zooplankton meter-net tow to a depth of about 300 m.

3. Surface zooplankton meter-net tow.

4. Dipnetting under night light, when conditions were favorable.

5. 900 ft bathythermograph lowering with surface salinity sample and general weather observations. (Sometimes omitted.)

In Situ and Other Special Stations

The above-mentioned routine, one forenoon and one night station per day, was modified in a number of areas, as follows:

1. In situ productivity stations (Nos. 4, 23, 49, 56, 62, 88) were essentially extended forenoon stations. The extra operations were in situ measurement of productivity (C^{14} method) and horizontal closing-net zooplankton tows at three depths (in mixed layer, in thermocline, and below thermocline at about 100-200 m).

2. Island surveys. For the purpose of investigating zooplankton standing crop gradients near islands in the way described above (Summary of Preliminary Results), several stations were occupied for the sole purpose of making zooplankton and/or nekton net tows (9, 11, 12, at Clarion Island; 19-21, 24-26, at Clipperton Island; 52, 53, 55, at Cocos Island); in addition to stations which were regular forenoon, night, or in situ stations (8, 10, 13, at Clarion; 22, 23, 27, at Clipperton; 51, 54, 56, at Cocos). Bathythermograph lowerings were made at some of these special stations.

3. Gulf of Tehuantepec survey. Several stations were occupied in this area for the purpose of making Nansen bottle casts and zooplankton net tows only (78, 80, 82, 84, 87, 89, 91-94); in addition, three regular forenoon stations (79, 83, 86), one in situ productivity station (88), and four regular night stations with Nansen bottle cast added (77, 81, 85, 90) were occupied. Bathythermograph lowerings were made at all the

TABLE 2

ANIMALS FROM "SCOT" NIGHT-LIGHT COLLECTIONS

Station No.	Katsuwonus	Euthynnus	Auxis	Coryphaena	Myctophidae	Hemiramphidae & Exocoetidae	Mullet	Polydactylus	Holocentrus	Siphonophora	Squid	Salp	OTHERS	
													Vertebrates	Invertebrates
7											x			
10				x	x	x					x			
14					x	x				x	x			Isopoda
16						H E				x		x		Amphipoda
26						x							Echeneidae	
29											x			
31					x	x				x	x			Mysidacea
33										x	x			Mysidacea Amphipoda
35				x	x	x					x		Belonidae	
36					x						x	x	Lepidopus xantusi	
38					x	x					x			
43				x	x	x				x	x		Carangidae Lepidopus xantusi Shark	
44	x		x		x	x					x			
46			x		x	x				x	x		Echeneidae	
48			x		x	x	x		x		x		Tetraodontidae	
49				x	x	x				x	x			
54					x	x			x		x		Istiophorus Echeneidae	Scyphozoa
59		x	x	x	x	x		x	x		x		Carangidae Hydrus platyurus	Euphausiacea Portunidae
61					x			x			x		Chauliodus Diodon Echeneidae	Amphipoda
63			x		x	x		x	x		x		Mullidae	Scyphozoa
69			x								x	x	Carangidae Hydrus platyurus	Amphipoda Euphausiacea
71											x			
7											x			

ANIMALS FROM "SCOT" NIGHT-LIGHT COLLECTIONS (cont.)

Station No.	Katsuwonus	Euthynnus	Auxis	Coryphaena	Myctophidae	Hemiramphidae & Exocoetidae	Mullet	Polydactylus	Holocentrus	Siphonophora	Squid	Salp	OTHERS	
													Vertebrates	Invertebrates
75				x		x		x	x		x	x	Mullidae	
81				x		x	x	x	x		x		Sharks	
85				x							x		Carangidae	
88				x		x			x		x			Pteropoda
90						x		x	x			x		
94											x			Chaetognatha Amphipoda
96						x	x				x			Pleurobrachia
97			x	x		x	x		x		x		Carangidae	
98			x			x	x		x		x			Amphipoda
113			x	x		x	x		x				Carangidae	Crab Larvae
114									x		x	x	Lepidopus xantusi Hydrus platyurus	
115						x	x	x			x		Hydrus platyurus	
116							x						Carangidae	
118						x								
124		x				x	x				x	x		Glaucus Euphausiacea
125			x	x	x	x	x		x		x			
129				x		x							Sharks	
130				x	x	x					x			
131			x	x		x					x			
135				x	x	x					x			
136			x			x					x			
137				x							x			
141		x	x			x	x	x	x		x		Assortment of shore fishes	Amphipoda Euphausiacea
142		x	x	x				x				x		
144			x			x					x			

4. Tuna larva survey, Acapulco-Las Tres Marias. Stations 99-112 and 117-140, with the exception of 100, 104, 109, 122, 133, and 139 which were regular noon stations, were occupied for the purpose of making zooplankton net tows, bathythermograph lowerings, and GEK measurements only. The oblique meter-net tows were made to a depth of about 140 m.

5. Miscellaneous special stations, of which particulars are given subsequently in this report, were Nos. 38-41, 43, 44, 63-68, 97, 98, 113-116, 141, 142, 144, 146, 148.

Underway Routine

While underway between forenoon stations, 900-ft bathythermograph (BT) lowerings were made every three hours and were accompanied by weather observations. GEK observations were initiated on departure from Clipperton Island at 4-hour intervals and were continued more or less routinely throughout the remainder of the expedition.

Continuous Observations

1. Sea-surface temperature was continuously recorded with a Taylor thermograph.

2. Incident solar radiation was measured with a 10-junction Eppley pyrheliometer combined with a Speedomax 0-10 mv recorder.

3. Depth of sea was continuously recorded with a Precision Depth Recorder.

METHODS

The following notes refer to kinds of observations in the order in which they appear in the "Station Data" and subsequent sections of this report.

Weather Observations

A hyphen indicates a missing observation. Wind force is given according to the Beaufort scale. The entry "weather" is given according to the code accompanying the Bathythermograph Observation Log published by the U. S. Navy Hydrographic Office. Cloud type, cloud amount (cover), and sea (height) are given according to codes in the Bathythermograph Observation Log, reproduced for convenience as follows:

Code	Cloud Type	Cloud Cover	Sea Height
0	Stratus or fractostratus	No cloud	Flat calm
1	Cirrus	Less than 1/10, or 1/10	Less than 1 ft
2	Cirrostratus	2/10 and 3/10	1 to 3 ft
3	Cirrocumulus	4/10	3 to 5 ft
4	Altocumulus	5/10	5 to 8 ft
5	Altostratus	6/10	8 to 12 ft
6	Stratocumulus	7/10 and 8/10	12 to 20 ft
7	Nimbostratus	9/10 and 9/10 plus	20 to 40 ft
8	Cumulus or fractocumulus	10/10	40 ft and over
9	Cumulonimbus	Sky obscured	Very rough, confused sea

Temperature, Salinity, Density, Thermosteric Anomaly, and Dynamic Height Anomaly

Temperature was measured with standard reversing thermometers. Nansen-bottle spacing in the upper 150 m was determined by the thermal structure as shown by a BT, and an attempt was made to place bottles, in this part of the water column, at intervals of equal temperature rather than intervals of equal depth.

Two or more chlorinity determinations were made with each sample by the Knudsen method, and converted to salinity.

Processing of the data was carried out by the Data Collection and Processing Group, Division of Marine Resources, Scripps Institution of Oceanography, using the method of Klein (A new technique for processing physical oceanographic data. MS). The 125-m level was introduced into the integration to obtain greater accuracy in the determination of ΔD. The interpolated values at 125 m are not tabulated.

Temperatures from reversing thermometers are recorded in hundredths of a degree. Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen indicates a missing observed value. The time is the time of messenger release. For Stations 62, 87 and 94, where two hydrographic casts were made, each messenger time and wire angle is given.

Three special notations have been used in listing these data.

To indicate a premature or delayed reversal of the bottle which results in certain depth and property errors, the following notation is used:

p: pretrip or posttrip.

Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations:

r: rejected value (seems to be definitely wrong);

u: uncertain value (may be correct; occasionally it can influence the drawing of the property curve).

Additional surface temperature and surface salinity data appear in the "Summary of Bathythermograph Observations."

Inorganic Phosphorus

Phosphate concentrations were measured using the method of Wooster and Rakestraw (Jour. Mar. Res., 10 (1): 91-100, 1951). Duplicate samples were analyzed at each depth and averaged, provided the calculated concentrations agreed within 0.05 μgm-at $PO_4/1$. Where agreement was less close both values were tabulated.

Reagent blank values (distilled water) between Stations 4 and 30 were rather variable with some exceedingly high. There was, however, no indication that the sea water determinations themselves were unreasonable or particularly in error. Thus a blank value was chosen after examining the order of reagent blank values obtained on the remainder of the expedition and the few reasonable values obtained between Stations 4 and 30. This selected blank value was used to correct all of the data between Stations 4 and 30.

Dissolved Oxygen

Dissolved oxygen measurements were made using the Winkler technique according to the directions of Wooster (Methods in chemical oceanography . . . . employed in the California Cooperative Sardine Research Program. Scripps Inst. Oceanogr., Tech. Rep., 27 pp.).

Submarine Daylight

At each forenoon station between Stations 4 and 95, both upwelling and downwelling radiation were measured with flat plate (i.e., cosine) collectors while only downwelling radiation was measured between Stations 122 and 147. Wratten No. 45 filters were used exclusively (peak transmission at 480 mμ) on the deck cell and on the submarine cells. Observations were not made at Stations 8, 13, 100 and 109 for technical reasons.

The station data have been corrected in the following manner:

a. All data have been corrected for departure in linearity of response.

b. In turn the values at each station have been

adjusted to a constant but arbitrary incident radiation value.

c. Maximum instrument depth was frequently obtained from a BT or Vibrotron depth element attached to the photometer. Intermediate depths were calculated from wire angle/wire length relationship. Agreement between the maximum (usually about 100 m) computed and observed depths was fair (± 3 m) providing the wire angle remained under 45°. Whenever the wire angle exceeded 45°, depth determinations obtained by the two methods rarely agreed, the wire angle/wire length determinations almost always indicating that the maximum instrument depth was less than that shown on the BT. In such cases the maximum depth indicated by BT or Vibrotron was used and the intermediate depths were calculated from wire angle/wire length relationship if the wire angle was less than 45°; in the few cases where the wire angle exceeded 45°, intermediate depths were rather arbitrarily chosen using a variety of subjective and objective criteria.

d. The diffuse attenuation coefficient per meter was calculated for both downwelling and upwelling radiation using the following formula:

$$K = \frac{\ln I_{\lambda Z_1} - \ln I_{\lambda Z_2}}{Z_2 - Z_1}$$

where I is the corrected output of the submerged cell, Z is the depth in meters, and λ refers to the spectral sensitivity of the Photronic cell-filter combination employed (assumed to be a constant).

At a number of stations the ratio of upwelling to downwelling radiation, alpha (α), is given. In these computations the difference in sensitivity of the up-looking and downlooking cells was taken into account.

Incident Solar Radiation

A gimbals-mounted Eppley 10-junction pyrheliometer was mounted above all superstructure on the A-frame of the ship. The signal was recorded with a 0-10 mv Speedomax recorder. The daily curve was integrated with a planimeter. The daily incident radiation total and day length are given in the station data section of this report, under the Regular Forenoon Station or In Situ Productivity Station of the day (occasionally under a Special Station).

Chlorophyll a Standing Crop

The water samples used for the determination of chlorophyll a content were collected from the surface with a plastic bucket; subsurface samples were collected with a Van Dorn-type plastic sampler. The water sample, 3.0-6.0 l in volume, was shaken after the addition of a small amount of magnesium carbonate, and filtered through a plain white 47-mm type HA Millipore filter. The filter membranes were dried in a vacuum desiccator with silica gel for 18-20 hours and then extracted with 3 ml of 90 percent acetone (glass redistilled) in the cold (ca. 10°C) and dark for approximately 10-12 hours. The sample was then centrifuged until clear. The supernatant was next decanted into a volumetric flask or cylinder and the remaining precipitate in the tube resuspended with 1-2 ml of 90 percent acetone, centrifuged, and the supernatant combined with that obtained previously. Recentrifugation of the combined extracts was frequently necessary to reduce turbidity. This extract was finally diluted to 6 ml, and its optical density was measured in a 10 cm semicro-absorption cell at 750, 665, 645, and 630 mμ with a Beckman model DU Spectrophotometer. Turbidity corrections were made on the basis of the sample transmission at 750 mμ and the concentrations of chlorophyll are calculated from the equations of Richards with Thompson (Jour. Mar. Res., 11 (2) pp. 156-172, 1952).

The integrated chlorophyll a value given at the bottom of the table for each station ("water column" value) was obtained by integration with a polar planimeter of smoothed profiles.

Zooplankton Standing Crop

Measurements by volume of the standing crop of zooplankton were made by means of plankton net hauls, using equipment comparable to that currently used in the California Cooperative Oceanic Fisheries Investigations. Both types of nets employed (regular and closing type) had a mouth-diameter of one meter: the main body of the net was made of 30XXX nylon grit gauze, while the rear section and cod end consisted of 56XXX nylon grit gauze. A flowmeter, mounted in the center of the mouth of each net, measured the volume of water filtered during each tow. Flowmeters were calibrated before and after the expedition.

Hauls made with non-closing nets were of three kinds: oblique, surface horizontal, and subsurface horizontal. Most oblique hauls were made by lowering the net at 50 m/min until 450 m of wire had been paid out and retrieving at the rate of 20 m/min. The ship speed was varied so as to maintain a wire angle of 45° during the retrieving period and the average haul lasted about 32 minutes. Between Acapulco and Tres Marias the majority of oblique net hauls were made by paying out only 200 m of wire: the duration of these hauls averaged about 14 minutes. The depths for individual hauls, estimated from wire angle and wire out, are given among the Station Data in this report, as are the times. The surface (0 m) horizontal tow was made astern while the oblique haul was in progress from the starboard side; it is estimated that the net did not sink more than 5 m during any tow of this type.

In a few localities (Stations 9, 11, 21, 26, 53, 55) where the depth did not permit even the shallow oblique haul mentioned above, a subsurface shallow horizontal haul was made. The net was lowered to a depth close to the bottom and towed horizontally. These computed depths ranged from 12 to 63 m.

The closing net (see Laevitt, Biol. Bull., 68 and 74, 1935 and 1938) was lowered to the desired depth and opened there by lowering a messenger, after which a horizontal haul was made. At the end of the haul, before it was brought to the surface, the net was closed by means of another messenger.

The catches were preserved in 4 percent buffered formalin. They were later filtered and the total "wet" volumes measured by displacement on shipboard. The volume of water sampled by each haul was determined by a method described by the South Pacific Fishery Investigations (now Biological Laboratory, Bureau of Commercial Fisheries, La Jolla), U. S. Fish Wildl. Serv. Spec. Sci. Rep.--Fish., No. 100, and the displacement volumes were converted into terms of the volume of organisms, in ml, collected from each 1000 m^3 of water strained. The small organisms (see right-hand column, station zooplankton tables) are those whose lengths are less than 5 cm.

Nekton Standing Crop

The large zooplankton and small nekton (organisms from 0.5 to 10.0 cm long, approximately) were captured in what was essentially a very large coarse-meshed plankton net hauled obliquely at about 5 kt. The net (about 20 ft in over-all length, of Marion Textiles pattern 467 nylon, throughout) was fastened at the mouth to a 5-ft-square iron frame to which towing bridles and weights were attached to keep it upright in the water when under way; a detachable cod end (as used on the meter nets, 56XXX nylon grit gauze) formed the catching part of the assembly.

The usual procedure on SCOT, where this net was employed mainly at night stations, was to pay it out on 450 m of 3/8 in. wire at 25 m/min and retrieve it at 10 m/min, all at a ship speed of 5 kt, 63 min in all for the haul. Depth, found for 12 hauls by attaching a BT, ranged from 72 to 115 m, mean 90 m.

Data recorded for these hauls consist of starting and finishing times, depth (where measured), and total displacement volume of catch.

Subsurface shallow (10-20 m) horizontal hauls with the same net were made at a few stations (9, 11, 19, 21, 53, 55) where the depth did not permit the oblique type of haul described above.

Night-Light Observations

At night stations, when weather permitted, an electric light (500 w) was placed above the water from the stern of the drifting vessel. A fine-meshed dipnet was used to capture young tunas and an array of other organisms under the light. Usually the light was left on for about 30 minutes but there were occasional large deviations from that period.

Bathythermograph Observations

The list of bathythermograph (BT) observations has been compiled from information tabulated on BT prints by the Scripps Institution BT Section. It includes: surface temperature; class of temperature-depth trace (C, M, N, or P, according to U. S. Navy Hydrographic Office criteria); and depth of surface layer (SL), defined as depth from surface to top of sharp negative temperature gradient (or depth of maximum temperature if there is a positive temperature gradient). Surface salinity, determined by the Knudsen method, is entered for BT positions at which it was measured.

Surface Current Velocity and Direction (GEK)

All measurements were made with neutrally buoyant cable. The conversion from measured electrical

potential to surface current was by the formula $E = - VH_zS$ where E is the measured potential, V the surface current, H_z the vertical component of the earth's magnetic field, and S the interelectrode distance. No corrections, therefore, have been made for "depth of current," "electrode droop," or "windage on electrodes."

Primary Production

Due to a number of technical difficulties, the productivity data could not be completed in time to be included in this report. These data will appear in the next report in the form of an appendix. The productivity techniques employed on SCOT are given below for reference.

The carbon-14 method was employed in these studies to determine the rate of carbon fixation by the phytoplankton. The carbon-14 solution was prepared and standardized in the manner described by Steemann Nielsen (Jour. du Cons., 18 (2): 117-140, 1952) with the exception that glass redistilled water rather than artificial sea water was used as the solvent. The C^{14} solution was then filtered through an HA Millipore filter and put in 10-ml glass ampules which were immediately autoclaved. The C^{14} solution was added with a plastic syringe and stainless steel needle provided with a positive stop. The radioactivity of the samples was measured with an NMC-PC#1 proportional counter.

All of the pyrex bottles used for incubation in these studies were aged in sea water and after use were washed with a detergent followed by an acid (H Cl) and sea-water rinse. Immediately prior to drawing of the sample, each bottle was rinsed three or more times with sea water collected at the sample depth.

In situ surface productivity was measured using samples dipped from the sea surface with a plastic bucket at either sunrise or local noon. The samples were placed in clean, well-aged, 250-ml or 125-ml Pyrex bottles inoculated with C^{14}, and trailed astern of the vessel, just under or on the top of the sea surface, until local noon or sunset, respectively. The samples were filtered immediately and placed in a vacuum desiccator for drying.

The in situ vertical measurements of productivity were carried out in the following manner. A water sample was collected at each desired depth with the plastic Van Dorn-type sampler shortly before daylight. The samples were transferred to clean, well-aged, 125-ml Pyrex bottles and the C^{14} solution injected with a plastic hypodermic syringe and stainless steel needle. The samples were resuspended at or slightly before dawn, at approximately the depth at which they were collected, on a weighted rope supported by a free-floating glass buoy (14 in. in diameter) enclosed in a cord netting and attached to a bamboo pole bearing a flag and radar reflector at its top. The surface sample was attached to the side of the glass buoy, just under the sea surface. The samples were collected at noon, local time, and were promptly filtered and dried for counting.

The samples incubated on shipboard were inoculated with C^{14} in the same manner as the in situ and trailing bottle material. The incubator itself was similar to that employed by Steemann Nielsen (op. cit.). Temperature control was achieved by circulating subsurface sea water through the water bath at a rate of 4-6 l. per minute. The temperature in the bath fluctuated somewhat but never exceeded the sea-surface temperature by more than 2.3°C, and usually by less than 1°C. Temperatures less than that of the sea surface were not observed in the incubator. The samples were illuminated by a bank of 10 daylight-type fluorescent lamps. The lamp bank was moveable and was the means employed in keeping the intensity of light at the bottles at 1000 foot-candles.

TABLE 3

SUMMARY OF STATION WORK

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Zooplankton: Nekton Net Haul	Dipnetting
1	25 Apr										x			x	
2	25 Apr	x	x		x						x	x			
3	26 Apr										x	x		x	
4	26 Apr	x	x	x	x	x	x	x	x	x	x	x	x		
5	27 Apr										x	x		x	
6	27 Apr	x	x	x	x	x	x	x		x	x	x			
7	28 Apr										x	x		x	x
8	28 Apr	x	x	x	x	x	x	x		x	x	x		x	
9	28 Apr										x-shallow	x		x-shallow	
10	28 Apr										x	x		x	x
11	29 Apr										x-shallow	x		x-shallow	
12	29 Apr										x	x		x	
13	29 Apr	x	x	x	x	x	x	x		x	x	x		x	
14	30 Apr										x	x		x	x
15	30 Apr	x	x	x	x	x	x	x		x	x	x			
16	1 May										x	x		x	x
17	1 May	x	x	x	x	x	x	x		x					
18	2 May										x	x		x	
19	2 May													x-shallow incomplete	
20	2 May										x	x		x	
21	2 May										x-shallow	x		x-shallow	
22	2 May													x	
22	3 May										x	x			

SUMMARY OF STATION WORK (cont.)

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Nekton Net Haul	Dipnetting
25	3 May	x	x	x	x	x	x	x	x	x			x		
24	3 May										x	x		x	
[illegible]	3 May										x	x			
26	3 May										x-shallow	x			x
27	3 May										x	x		x	
28	4 May	x	x	x	x	x	x	x		x	x	x			
29	5 May										x	x		x	x
[illegible]	5 May	x	x	x	x	x	x	x		x	x	x			
31	6 May										x	x		x	x
32	6 May	x	x	x	x	x	x	x		x	x	x			
[illegible]	7 May										x	x		x	x
[illegible]	7 May	x	x	x	x	x	x	x		x	x	x			
[illegible]	8 May										x	x		x	x
36	9 May										x	x		x	x
[illegible]	9 May	x	x	x	x	x	x	x		x	x	x			
[illegible]	9 May	x	x	x							x	x			x
[illegible]	9 May	x	x	x											
[illegible]	[illegible] May	x	x	x											
[illegible]	[illegible] May	x	x	x											
[illegible]	May	x	x	x	x	x	x	x		x	x	x			
[illegible]	10 May	x	x	x											x
[illegible]	[illegible] May	x	x	x											x
[illegible]	[illegible] May	x	x	x	x	x	x	x		x	x	x			
46	[illegible] May										x	x			x

SUMMARY OF STATION WORK (cont.)

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Zooplankton: Nekton Net Haul	Zooplankton: Dipnetting
45	11 May	x	x	x	x	x	x	x		x	x	x			
46	12 May										x	x		x	x
47	12 May	x	x	x	x	x	x	x		x	x	x			
48	13 May										x	x		x	x
49	13 May	x	x	x	x	x	x	x	x	x	x	x	x	x	x
50	14 May	x	x	x	x	x	x	x			x	x			
51	15 May										x	x		x	x
52	15 May										x	x		x	
53	15 May										x-shallow	x		x-shallow	
54	15 May										x	x		x	x
55	15 May										x-shallow			x-shallow	
55	16 May										x	x			
56	16 May	x	x	x	x	x	x	x	x	x	x	x	x	x	x
57	17 May										x	x		x	x
58	17 May	x	x	x	x	x	x	x		x	x	x			
59	18 May										x	x		x	x
60	18 May	x	x	x	x	x	x	x		x	x	x			
61	19 May										x	x		x	x
62	19 May	x	x	x	x	x	x	x	x	x	x	x	x		
63	20 May													x	x
May 20 - May 23		Balboa, Canal Zone													
64	23 May								x-shallow						

SUMMARY OF STATION WORK (cont.)

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Zooplankton: Nekton Net Haul	Zooplankton: Dipnetting
65	23 May								x-shallow						
66	23 May								x-shallow						
67	23 May								x-shallow						
68	23 May								x-shallow						
69	24 May										x	x		x	x
70	24 May	x	x	x	x	x	x	x		x	x	x			
71	25 May										x	x		x	x
72	25 May	x	x	x	x	x	x	x		x	x	x			
73	26 May										x	x		x	x
74	26 May	x	x	x	x	x	x	x		x	x	x	x		
75	27 May										x	x		x	x
76	27 May	x	x	x	x	x	x	x		x	x	x			
77	28 May	x	x	x							x	x		x	
78	28 May	x	x	x							x	x			
79	28 May	x	x	x	x	x	x	x		x	x	x			
80	28 May	x	x	x							x	x		x	x
81	29 May	x	x	x					x-shallow		x	x			
82	29 May	x	x	x							x	x		x	x
83	29 May	x	x	x	x	x	x	x	x-shallow		x	x			
84	29 May	x	x	x						x	x	x			
85	30 May	x	x	x							x	x		x	x
86	30 May	x	x	x	x	x	x	x		x	x	x	x		

SUMMARY OF STATION WORK (cont.)

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Phytoplankton Production: Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Zooplankton: Nekton Net Haul	Zooplankton: Dipnetting
87	30 May	x(deep)	x	x							x	x		x	
88	31 May	x	x	x	x	x	x	x	x	x	x	x	x		x
89	31 May	x	x	x							x	x			
90	31 May	x	x	x							x	x		x	x
91	1 June	x	x	x							x	x			x
92	1 June	x	x	x	x	x	x	x		x	x	x			
93	1 June	x	x	x							x	x			
94	1 June	x(deep)	x	x							x	x		x	x
95	2 June	x	x	x	x	x	x	x		x	x	x			
96	2 June										x-shallow			x	x
June 2 - June 5		Acapulco													
97	5 June														x
98	5 June													x	x
98	6 June													x	x
99	6 June										x-shallow	x			
100	6 June	x	x	x	x	x	x	x		x	x	x	x		
101	6 June										x-shallow	x			
102	7 June										x-shallow	x			
103	7 June										x-shallow	x			
104	7 June	x	x	x		x	x	x		x	x	x			
105	7 June										x-shallow	x			
106	7 June										x-shallow	x			

SUMMARY OF STATION WORK (cont.)

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Phytoplankton Production: Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Zooplankton: Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Zooplankton: Nekton Net Haul	Zooplankton: Dipnetting
107	8 June										x-shallow	x			
108	8 June										x-shallow	x			
109	8 June	x	x	x		x	x	x		x	x	x			
110	8 June										x-shallow	x			
111	8 June										x-shallow	x			
112	8 June										x-shallow	x			
113	10 June														x
114	10 June														x
115	11 June														x
116	11 June														x
117	11 June										x-shallow	x			
118	11 June										x-shallow	x		x	x
119	12 June										x-shallow	x			
120	12 June										x-shallow	x			
121	12 June										x-shallow	x			
122	12 June	x	x	x		x	x	x		x	x	x			
123	12 June										x-shallow	x			
124	12 June										x-shallow	x			x
125	13 June										x-shallow	x			x
126	13 June										x-shallow	x			
127	13 June	x	x	x	x	x	x	x		x	x	x			
128	13 June										x-shallow	x			

SUMMARY OF STATION WORK (cont.)

Station No.	Date	Hydrographic Cast	Oxygen	Inorganic Phosphorus	Submarine Daylight	Chlorophyll	Phytoplankton Production: Trailing Bottle	Phytoplankton Production: Incubator	Phytoplankton Production: in situ	Phytoplankton Samples	Zooplankton: Std. Oblique Haul	Zooplankton: Surface Haul	Zooplankton: Closing Net	Zooplankton: Nekton Net Haul	Zooplankton: Dipnetting
129	13 June										x-shallow	x			x
130	14 June										x-shallow	x			x
131	14 June										x-shallow	x			x
132	14 June										x-shallow	x			
133	14 June	x	x	x	x	x		x		x	x	x			
134	14 June										x-shallow	x			
135	14 June										x-shallow	x		x	x
136	15 June										x-shallow	x			x
137	15 June										x-shallow	x			x
138	15 June										x-shallow	x			
139	15 June	x	x	x	x	x		x		x	x	x			
140	15 June										x-shallow	x			
141	15 June														x
142	15 June														x
142	16 June													x	
143	16 June	x	x	x	x	x		x		x	x	x			
144	17 June													x	
144	17 June													x	x
145	17 June	x	x	x	x	x		x		x	x	x			
146	18 June													x	x
147	18 June	x	x	x	x	x		x		x	x	x			
148	19 June													x	

SPECIAL ABBREVIATIONS IN TABLES

C N:	closing net
e:	estimated
H:	horizontal
L:	length
N-C N:	non-closing net
o:	oblique
S:	small
T:	total

Note: all zooplankton values are actually milliliters per 1000 m^3.

STATION 1
(regular night)

April 25, 1958; 0800-1027 GCT; 26°52.5'N, 118°47'W; 2086 fm; wind, missing; temp., 62.2°F dry, 58.2°F wet; weather, 02; clouds, 6, amt., 1; sea, 4; swell, missing; time zone 8.

Biological Data

Zooplankton: N-C N, o to 315 m, 0820-0853 GCT, 7 ml[1/] T, 7 ml S.

Nekton: o, depth missing, 0905-1010 GCT, 100 ml T.

STATION 2
(regular forenoon)

April 25, 1958; 1905 GCT; 25°26'N, 119°09.5'W; 2200 fm; wind, 350°, force 3; temp., 64.0°F dry, 59.0°F wet; weather, cloudy; sea, moderate; wire angle, 15°; time zone 8.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	19.08	34.14	4.93	-	0	19.08	34.14	4.93	24.36	358	0.00
11	19.06	34.14	4.98	-	10	19.07	34.14	4.97	24.37	357	0.04
31	18.98	34.14	4.94	-	20	19.02	34.14	4.96	24.38	356	0.07
54	18.60	34.14	4.97	-	30	18.99	34.14	4.95	24.39	355	0.11
69	18.56	34.22	4.95	-	50	18.63	34.14	4.96	24.47	347	0.18
82	18.40	34.20	4.88	-	75	18.47	34.21	4.90	24.57	338	0.26
97	15.00	33.78	4.88	-	100	14.30	33.76	4.80	25.18	279	0.34
122	13.39	33.73	4.60	-							

Incident solar radiation: daily T 621 gm-cal/cm^2, day L 13.05 hr.

Biological Data

Zooplankton: N-C N, o to 322 m, 2125-2157 GCT, 6 ml T, 6 ml S; H at 0 m, 2156-2213 GCT, 8 ml T, 8 ml S.

Phytoplankton haul taken.

STATION 3
(regular night)

April 26, 1958; 0800-1021 GCT; 23°36.5'N, 119°33'W; 2160 fm; wind, 360°, force 3; temp., 65.0°F dry, 59.8°F wet; weather, 02; clouds, 6, amt., 6; sea, 3; swell, 340°, missing; time zone 8.

Biological Data

Zooplankton: N-C N, o to 322 m, 0934-1007 GCT, 24 ml T, 24 ml S; H at 0 m, 1000-1016 GCT, 22 ml T, 22 ml S.

Nekton: o, depth missing, 0820-0925 GCT, 152 ml T.

STATION 4
(in situ productivity)

April 26, 1958; 1525 GCT; 23°10'N, 119°42'W; 2095 fm; wind, 010°, force 3; temp., 64.0°F dry, 60.2°F wet; weather, cloudy; sea, rough; wire angle, 20°; time zone 8.

[1/] All values per 1000 m^3.

STATION 4 (cont.)

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T} 10^{-5} cm^3/g	ΔD dyn m
0	20.25	34.45	5.15	0.38	0	20.25	34.45	5.15	24.30	364	0.00
9	20.24	34.43	5.30	0.42	10	20.24	34.43	5.32	24.29	365	0.04
28	20.24	34.44	5.30	0.42	20	20.24	34.43	5.32	24.29	365	0.07
56	18.98	34.20	5.61	0.49	30	20.22	34.43	5.32	24.30	364	0.11
69	18.98	34.29	5.40	0.48a)	50	20.22	34.43	5.33	24.30	364	0.18
87	18.67	34.29	4.44	0.45	75	18.87	34.29	4.88	24.54	341	0.27
100	17.56	34.13	5.46	0.55	100	17.56	34.13	5.46	24.74	322	0.36
121	14.25	33.89	4.62	(0.004)a)	150	11.34	33.71	4.18	25.73	227	0.49
147	11.47	33.70	4.24	1.47a)	200	9.78	34.06	2.51	26.28	175	0.60
174	10.41	33.88	3.14	2.13a)	250	9.25	34.24	1.66	26.50	154	0.68
202	9.75	34.07	2.50	2.46	300	8.79	34.33	1.06	26.65	140	0.76
263	9.16	34.28	1.46	3.30a)	400	7.62	34.40	0.37	26.88	118	0.89
358	8.10	34.39	0.53	3.33a)	500	6.70	34.42	0.21	27.03	104	1.01
484	6.84	34.42	0.21	3.86a)	600	6.00	34.46	0.21	27.15	93	1.12
726	5.30	34.49	0.26	4.07	700	5.42	34.48	0.24	27.24	84	1.21
1077	3.97	34.54	0.44	4.17a)	800	4.98	34.50	0.29	27.30	78	1.30
					1000	4.25	34.53	0.40	27.41	68	1.46

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0121	5	0.047
10-19	0.0253	10	0.046
19-28	0.0224	19	0.045
28-36	0.0326	28	0.044
36-52	0.0266	52	0.044
52-69	0.198	69	0.033
69-87	0.0272		
87-98	0.0822		

Incident solar radiation: daily T 571 gm-cal/cm^2, day L 13.05 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.096; 12, 0.026; 26, 0.044; 39, 0.059; 66, 0.061; 106, 0.38.

Water column chlorophyll a: 12 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 343 m, 1613-1639 GCT, 10 ml T, 10 ml S; o to 308 m, 1718-1757 GCT, 23 ml T, 23 ml S; H at 0 m, 1645-1702 GCT, 21 ml T, 21 ml S.
C N, H at 77 m, 1845-1901 GCT, 24 ml T, 24 ml S; H at 175 m, 2102-2027 GCT, 11 ml T, 11 ml S.

STATION 5
(regular night)

April 27, 1958; 0800-1118 GCT; 21°59'N, 118°21'W; 2208 fm; wind, 020°, force 3; temp., 66.2°F dry, 61.6°F wet; weather, 02; clouds, missing; sea, 2; swell, 020°, missing; time zone 8.

a) Duplicate values: 69 m, 0.90; 121 m, (0.06); 147 m, 1.88; 174 m, 2.03; 263 m, 2.73; 358 m, 3.43; 484 m, 3.52; 1077 m, 3.79 µg at/L.

Biological Data

Zooplankton: N-C N, o to 317 m, 0928-1001 GCT, 21 ml T, 21 ml S; H at 0 m, 0952-1007, 32 ml T, 32 ml S.

Nekton: o, depth missing, 0814-0918 GCT, 64 ml T.

STATION 6
(regular forenoon)

April 27, 1958; 1821 GCT; 21°13'N, 117°23'W; 2115 fm; wind, 360°, force 2; temp., 70.0°F dry, 66.0°F wet; weather, cloudy; sea, rough; wire angle, 13°; time zone 8.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	21.22	34.56	5.24	0.38	0	21.22	34.56	5.24	24.11	381	0.00
10	21.08	34.56	5.22	0.50	10	21.08	34.56	5.22	24.15	377	0.04
29	21.06	34.57	5.23	0.45	20	21.07	34.56	5.22	24.15	377	0.08
53	20.79	34.54	5.27	0.42a)	30	21.05	34.57	5.24	24.16	376	0.11
68	20.63	34.53	5.32	0.43	50	20.82	34.54	5.26	24.21	372	0.19
81	19.33	34.29	5.45	0.44	75	20.04	34.41	5.42	24.32	361	0.28
95	17.85	34.08	5.30	0.59	100	17.17	34.00	5.13	24.74	322	0.37
117	14.07	33.81	4.09	1.22	150	12.11	34.00	2.47	25.81	220	0.50
144	12.30	33.94	2.74	1.87a)	200	11.62	34.60	0.27	26.38	166	0.60
167	11.52	34.19	1.97	2.31	250	10.95	34.64	0.16	26.52	152	0.68
198	11.63	34.60	0.30	2.80	300	10.13	34.61	0.15	26.65	140	0.76
252	10.90	34.64	0.16	2.90a)	400	8.68	34.54	0.17	26.83	123	0.89
348	9.42	34.57	0.19	3.04	500	7.40	34.51	0.10	27.00	107	1.02
467	7.80	34.51	0.12	3.27	600	6.40	34.51	0.04	27.14	94	1.12
708	5.74	34.51	0.05	3.46	700	5.78	34.51	0.05	27.22	86	1.22
1045	4.15	34.54	0.58	3.51	800	5.28	34.52	0.16	27.28	80	1.32
					1000	4.35	34.54	0.49	27.40	68	1.48

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
20-37	0.0299	20	0.036
37-51	0.0266	37	0.039
51-70	0.0229	51	0.034
70-88	0.0387		

Incident solar radiation: daily T 679 gm-cal/cm^2, day L 12.90 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.036; 12, 0.018; 26, missing; 39, 0.048; 66, 0.038; 106, 0.28.

Water column chlorophyll a: 7.1 mg/m^2.

Zooplankton: N-C N, o to 315 m, 2024-2057 GCT, 18 ml T, 18 ml S; H at 0 m, 2045-2101 GCT, 10 ml T, 10 ml S.

a) Duplicate values: 53 m, 0.49; 144 m, 1.78; 252 m, 2.81 µg at/L.

STATION 7
(regular night)

April 28, 1958; 0800-1042 GCT; 19°37'N, 115°53'W; 2150 fm; wind, 020°, force 3; temp., 70.0°F dry, 67.0°F wet; weather, 02; clouds, 0, amt., 0; sea, 2; swell, 020°, missing; time zone 8.

Biological Data

Zooplankton: N-C N, o to 317 m, 0932-1004 GCT, 20 ml T, 20 ml S; H at 0 m, 0955-1011 GCT, 23 ml T, 23 ml S.

Nekton: o, depth missing, 0816-0920 GCT, 118 ml T.

Night-lighting operations.

STATION 8
(regular forenoon)

April 28, 1958; 1848 GCT; 18°41'N, 114°53'W; 1983 fm; wind, 020°, force 3; temp., 74.2°F dry, 69.7°F wet; weather, clear; sea, moderate; wire angle, 15°; time zone 8.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	24.08	34.34	4.66	0.36	0	24.08	34.34	4.66	23.14	475	0.00
9	23.97	34.36	4.78	0.39	10	23.95	34.36	4.76	23.19	469	0.05
29	22.52	34.48	4.94	0.38	20	23.24	34.43	4.89	23.46	444	0.09
57	21.42	34.51	4.86	0.30a)	30	22.45	34.48	4.96	23.72	419	0.14
71	20.95	34.47	5.02	0.31	50	21.45	34.51	5.10	24.01	391	0.22
89	19.30	34.26	5.12	0.42	75	20.67	34.43	5.08	24.17	375	0.31
103	16.47	34.05	3.52	1.33	100	17.17	34.09	4.08	24.80	316	0.40
125	13.60	34.08	2.19	2.05a)	150	12.82	34.51	1.40	26.07	195	0.53
151	12.83	34.52	0.51	2.77	200	12.05	34.68	0.13	26.36	168	0.62
178	12.58	34.67	0.15	2.94a)	250	11.39	34.71	0.08	26.50	154	0.70
210	11.86	34.69	0.13	2.98	300	10.80	34.70	0.05	26.60	145	0.78
273	11.14	34.72	0.05	3.08	400	9.41	34.61	0.05	26.76	130	0.92
371	9.82	34.63	0.05	3.16	500	7.90	34.55	0.07	26.95	111	1.05
502	7.86	34.55	0.07	3.41	600	6.85	34.53	0.09	27.09	98	1.17
747	5.66	34.52	0.19	3.54	700	5.98	34.52	0.16	27.20	88	1.27
1101	3.98	34.56	0.48	3.63	800	5.36	34.52	0.23	27.28	80	1.36
					1000	4.42	34.55	0.40	27.40	69	1.53

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
10-20	0.0245
20-37	0.0378
37-52	0.0226
52-66	0.0364
66-76	0.0319

Incident solar radiation: daily T 679 gm-cal/cm^2, day length 12.95 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.14; 12, 0.12; 26, 0.067; 39, 0.088; 66, 0.091; 106, 0.36.

a) Duplicate values: 57 m, 0.40; 125 m, 1.97; 178 m, 2.86 µg at/L.

Water column chlorophyll a: 16 mg/m^2.

Zooplankton: N-C N, o to 317 m, 2015-2048 GCT, 10 ml T, 10 ml S; H at 0 m, 2018-2048 GCT, 12 ml T, 12 ml S.

Nekton: o, depth missing, 2152-2258 GCT, 35 ml T.

STATION 9
(special)

April 29, 1958; 0012-0220 GCT; 18°23.5'N, 114°46.5'W; 24 fm; time zone 8.

Biological Data

Zooplankton: N-C N, H at 12 m, 0019-0047 GCT, 5 ml T, 5 ml S; H at 0 m, 0025-0055 GCT, 4 ml T, 4 ml S.

Nekton: H at 10 m, 0115-0218 GCT, 12 ml T.

STATION 10
(regular night)

April 29, 1958; 0405-0803 GCT; 18°04'N, 114°28'W; time zone 8.

Biological Data

Zooplankton: N-C N, o to 305 m, 0713-0747 GCT, 31 ml T, 31 ml S; H at 0 m, 0719-0755 GCT, 36 ml T, 36 ml S.

Nekton: o, depth missing, 0555-0700 GCT, 75 ml T.

Night-lighting operations.

STATION 11
(special)

April 29, 1958; 0913-1118 GCT; 18°21'N, 114°40'W; 20 fm; time zone 8.

Biological Data

Zooplankton: N-C N, H at 21 m, 1030-1059 GCT, 151 ml T, 151 ml S; H at 0 m, 1035-1105 GCT, 19 ml T, 19 ml S.

Nekton: H at 10 m, 0912-1020 GCT, 73 ml T.

STATION 12
(special)

April 29, 1958; 1221-1440 GCT; 18°32'N, 114°50'W; time zone 8.

Biological Data

Zooplankton: N-C N, o to 295 m, 1400-1432 GCT, 20 ml T, 20 ml S; H at 0 m, 1406-1437 GCT, 37 ml T, 37 ml S.

Nekton: o, depth missing, 1240-1355 GCT, 474 ml T.

STATION 13
(regular forenoon)

April 29, 1958; 2205 GCT; 18°08.5'N, 114°32'W; 2020 fm; wind, 020°, force 3; temp., 75.2°F dry, 70.2°F wet; weather, cloudy; sea, slight; wire angle, 25°; time zone 8.

STATION 13 (cont.)

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	24.24	34.31	4.92	0.35	0	24.24	34.31	4.92	23.07	481	0.00
9	24.20	34.31	4.78	0.35	10	24.20	34.31	4.80	23.09	479	0.05
28	24.06	34.31	4.88	0.35	20	24.12	34.31	4.84	23.11	477	0.10
54	22.82	34.49	4.92	0.38	30	23.40	34.39	4.92	23.38	451	0.14
65	22.48	34.47	5.00	0.40	50	22.90	34.48	4.92	23.59	431	0.23
82	20.92	34.41	5.18	0.47	75	21.74	34.44	5.11	23.89	402	0.34
94	19.00	34.23	4.72	0.70	100	16.53	34.10	3.46	24.96	301	0.42
113	14.51	34.08	2.51	1.88	150	12.69	34.54	0.66	26.12	190	0.55
135	13.76	34.51	0.52	2.73	200	11.84	34.70	0.20	26.41	163	0.64
158	12.53	34.58	0.66	2.76	250	11.00	34.69	0.07	26.56	149	0.72
186	12.04a)	34.70	0.31	2.96	300	10.26	34.64	0.15	26.65	140	0.80
239	11.18	34.70	0.07	3.02	400	8.76	34.57	0.33	26.84	122	0.93
325	9.83	34.61	0.20	3.20	500	7.65	34.54	0.33	26.99	108	1.05
439	8.25	34.56	0.39	3.35	600	6.78	34.53	0.13	27.10	97	1.17
660	6.28	34.52	0.07	3.54	700	6.02	34.52	0.12	27.20	88	1.27
1000	4.49	34.53	0.46	3.64	800	5.47	34.52	0.25	27.26	82	1.36
					1000	4.49	34.53	0.46	27.38	71	1.53

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
10-20	0.0262
20-38	0.0296
38-49	0.0447
49-66	0.0279
66-87	0.0359

Incident solar radiation: daily T 529 gm-cal/cm^2, day L 13.06 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.12; 12, 0.064; 20, 0.054; 31, 0.062; 52, 0.072; 84, 0.18; 129, 0.14.

Water column chlorophyll a: 15 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 302 m, 1958-2031 GCT, 13 ml T, 13 ml S; H at 0 m, 2005-2036 GCT, 10 ml T, 10 ml S.

Nekton: o, depth missing, 1758-1904 GCT, 31 ml T.

STATION 14
(regular night)

April 30, 1958; 0800-1056 GCT; 16°33'N, 113°19.5'W; 2040 fm; wind, 060°, force 2; temp., 76.8°F dry, 72.0°F wet; weather, 01; clouds, 0, amt., 0; sea, 2; swell, 050°, missing; time zone 8.

Biological Data

Zooplankton: N-C N, o to 319 m, 0927-1000 GCT, 50 ml T, 50 ml S; H at 0 m, 0950-1005 GCT, 7 ml T, 7 ml S.

Nekton: o, depth missing, 0813-0917 GCT, 283 ml T.

Night-lighting operations.

a) Alternate value, 11.81°C, uncertain.

STATION 15
(regular forenoon)

April 30, 1958; 1840 GCT; 15°28.5'N, 112°23'W; 1847 fm; wind, 040°, force 2; temp., 83.0°F dry, 75.8°F wet; weather, cloudy; sea, slight; wire angle, 08°; time zone 8.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	27.06	33.90	4.60	0.47a)	0	27.06	33.90	4.60	21.89	593	0.00
10	26.82	33.91	4.66	0.43a)	10	26.83	33.91	4.66	21.98	585	0.06
29	26.07	34.01	4.60	0.40	20	26.69	33.92	4.66	22.03	580	0.12
58	25.58	34.09	4.64	0.39	30	26.05	34.02	4.60	22.30	554	0.17
73	24.45	34.13	4.62	0.46	50	25.72	34.07	4.62	22.45	540	0.28
91	21.66	34.42	2.95	1.30	75	24.16	34.14	4.53	22.96	491	0.41
105	18.29	34.48	1.16	2.11	100	19.47	34.47	1.70	24.52	343	0.52
128	14.78	34.67	0.00	2.80	150	13.28	34.77	0.00	26.18	185	0.64
157	13.10	34.78	0.00	2.88	200	12.26	34.81	0.02	26.42	162	0.73
184	12.58	34.84	0.03	2.90	250	11.56	34.78	0.00	26.53	152	0.81
217	11.94	34.78	0.00	2.93	300	10.70	34.72	0.00	26.63	142	0.89
281	11.00	34.74	0.00	3.00	400	9.34	34.65	0.00	26.81	125	1.03
384	9.54	34.66	0.00	3.19	500	8.04	34.57	0.00	26.96	111	1.16
521	7.74	34.56	0.00	3.41	600	6.94	34.54	0.01	27.08	99	1.27
773	5.76	34.52	0.08	3.50	700	6.16	34.52	0.04	27.18	90	1.38
1135	4.04	34.56	0.61	3.41a)	800	5.60	34.52	0.09	27.24	84	1.47
					1000	4.68	34.54	0.40	27.37	72	1.65

Incident solar radiation: daily T 527 gm-cal/cm^2, day L 12.62 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.067; 12, 0.071; 20, 0.059; 31, 0.052; 52, 0.095; 84, 0.33; 129, 0.062.

Water column chlorophyll a: 21 mg/m^2

Zooplankton: N-C N, o to 288 m, 2016-2049 GCT, 30 ml T, 30 ml S; H at 0 m, 2037-2053 GCT, 22 ml T, 22 ml S.

STATION 16
(regular night)

May 1, 1958; 0800-1111 GCT; 13°58'N, 111°26'W; 1915 fm; wind, 360°, force 3; temp., 80.8°F dry, 75.8°F wet; weather, 02; clouds, 6, amt., 2; sea, 2; swell, 030°, missing; time zone 8.

Biological Data

Zooplankton: N-C N, o to 288 m, 1048-1121 GCT, 129 ml T, 129 ml S; H at 0 m, 1054-1126 GCT, 19 ml T, 19 ml S.

Nekton: o, depth missing, 0813-0925 GCT, 232 ml T.

Night-lighting operations.

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a) Duplicate values: 0 m, 0.35; 10 m, 0.35; 1135 m, 3.60 µg at/L.

STATION 17
(regular forenoon)

May 1, 1958; 1745 GCT; 13°03'N, 110°44'W; 2230 fm; wind, 050°, force 3; temp., 83.1°F dry, 79.0°F wet; weather, partly cloudy; sea, moderate; wire angle, 05°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn m
0	28.78	33.84	4.21	0.30	0	28.78	33.84	4.21	21.29	651	0.00
10	28.68	33.86	4.27	0.37a)	10	28.68	33.86	4.27	21.33	646	0.06
29	28.49	33.82	4.00	0.32	20	28.60	33.84	4.08	21.35	645	0.13
59	28.09	33.84	4.20	0.33	30	28.48	33.82	4.02	21.37	642	0.19
73	27.24	33.86	4.60	0.44a)	50	28.26	33.83	4.12	21.45	635	0.32
93	25.43	34.14	3.86	0.72	75	27.10	33.86	4.62	21.86	597	0.48
106	21.88	34.45	2.27	1.50	100	23.50	34.28	3.30	23.27	462	0.61
129	15.62	34.70	0.20	2.62	150	13.39	34.77	0.00	26.16	186	0.76
156	13.18	34.78	0.00	2.66a)	200	12.00	34.81	0.00	26.46	158	0.85
183	12.39	34.83	0.00	2.81a)	250	11.30	34.77	0.00	26.57	148	0.93
215	11.76	34.79	0.00	2.81	300	10.68	34.74	0.00	26.65	140	1.00
279	10.99	34.76	0.00	2.90	400	9.20	34.64	0.00	26.83	123	1.14
384	9.42	34.65	0.00	3.17	500	7.90	34.61	0.00	27.00	107	1.26
520	7.64	34.60	0.00	3.45	600	6.85	34.58	0.00	27.13	94	1.37
771	5.66	34.56	0.00	3.58	700	6.08	34.57	0.00	27.22	86	1.47
1128p	4.06	34.60	0.51	3.60	800	(5.52)	(34.56)	(0.00)	(27.29)	(79)	(1.56)
					1000	(4.62)	(34.58)	(0.30)	(27.40)	(69)	(1.73)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-18	0.0305	10	0.037
18-36	0.0254		
36-52	0.0315		
52-68	0.0464		
68-88	0.0612		
88-99	0.0682		

Incident solar radiation: daily T 565 gm-cal/cm^2, day L 12.65 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.066; 25, 0.053; 50, 0.074; 75, 0.17; 100, 0.36; 150, 0.11.

Water column chlorophyll a: 42 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 306 m, 1852-1925 GCT, 40 ml T, 40 ml S; H at 0 m, 1900-1931 GCT, 8 ml T, 8 ml S.

STATION 18
(regular night)

May 2, 1958; 0700-0911 GCT; 11°14'N, 109°48'W; 2220 fm; wind, 030°, force 3; temp., 86.0°F dry, 80.0°F wet; weather, 02; clouds, 2, amt., 8; sea, 2; swell, 030°, missing; time zone 7.

a) Duplicate values: 10 m, 0.30; 73 m, 0.51; 156 m, 2.77; 183 m, 2.74 µg at/L.

Biological Data

Zooplankton: N-C N, o to 306 m, 0832-0905 GCT, 47 ml T, 47 ml S; H at 0 m, 0840-0911 GCT, 146 ml T, 146 ml S.

Nekton: o, depth missing, 0715-0820 GCT, 156 ml T.

STATION 19
(special)

May 2, 1958; 1945-2110 GCT; 10°18.5'N, 109°12'W; 25-30 fm; time zone 7.

Biological Data

Nekton: H at 10 m, 1945-2050 GCT, 6 ml T. (Incomplete, net torn.)

STATION 20
(special)

May 2-3, 1958; 2220-0050 GCT; 10°18'N, 109°27'W; 1442 fm; time zone 7.

Biological Data

Zooplankton: N-C N, o to 291 m, 0009-0042 GCT, 29 ml T, 29 ml S; H at 0 m, 0014-0047 GCT, 50 ml T, 50 ml S.

Nekton: o, depth missing, 2250-0000 GCT, 15 ml T.

STATION 21
(special)

May 3, 1958; 0253-0505 GCT; 10°17'N, 109°14'W; 20 fm; wind, 070°, force 4; temp., 83.0°F dry, 80.0°F wet; weather, 01; clouds, 6, amt., 1; sea, 2; swell, 140°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, H at 17 m, 0256-0329 GCT, 112 ml T, 112 ml S; H at 0 m, 0303-0333 GCT, 188 ml T, 188 ml S.

Nekton: H at 10 m, 0350-0455 GCT, 42 ml T.

STATION 22
(regular night)

May 3, 1958; 0611-0825 GCT; 10°19'N, 109°32'W; depth, missing; wind, 070°, force 3; temp., 84.5°F dry, 79.5°F wet; weather, 02; clouds, 6, amt., 2; sea, 3; swell, 070°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 278 m, 0731-0804 GCT, 75 ml T, 75 ml S; H at 0 m, 0750-0820 GCT, 179 ml T, 173 ml S.

Nekton: o, depth missing, 0618-0723 GCT, 22 ml T.

STATION 23
(in situ productivity)

May 3, 1958; 1403 GCT; 10°14'N, 109°13.5'W; 1500 fm; wind, 080°, force 3; temp., 84.0°F dry, 80.0°F wet; weather, partly cloudy; sea, moderate; wire angle, 32°; time zone 7.

STATION 23 (cont.)

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.58	33.46	3.33	0.26	0	29.58	33.46	3.33	20.75	704	0.00
8	29.58	33.44	3.40	0.30	10	29.60	33.45	3.40	20.73	706	0.07
25	29.60	33.46	3.43	0.33	20	29.60	33.45	3.42	20.73	706	0.14
46	28.91	33.84	3.42	0.35	30	29.55	33.58	3.47	20.84	694	0.21
53	28.68	33.81	4.47	0.32	50	28.90	33.83	3.53	21.26	654	0.34
61	28.72	34.04	4.44	0.37	75	26.80	33.92	4.30	21.99	584	0.50
73	27.31	33.89	4.40	0.39	100	20.10	34.53	1.84	24.40	354	0.62
82	24.95	34.02	3.58	0.86	150	12.83	34.85	0.00	26.33	170	0.74
99	20.38	34.51	1.95	1.74	200	11.69	34.76	0.00	26.48	156	0.82
116	16.23	34.72	0.36	2.42	250	11.10	34.73	0.00	26.57	148	0.90
138	13.16	34.81	0.00	2.72	300	10.38	34.71	0.00	26.68	137	0.97
174	12.04	34.78	0.00	2.81a)	400	9.12	34.64	0.00	26.84	122	1.11
237	11.26	34.74	0.00	2.77	500	7.80	34.58	0.00	26.99	107	1.23
310	10.22	34.70	0.00	3.00	600	6.75	34.55	0.00	27.13	95	1.34
507	7.70	34.58	0.00	3.40	700	6.08	34.53	0.00	27.19	88	1.44
734	5.90	34.53	0.00	3.58							

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0258	10	0.038
20-36	0.0399	20	0.042
36-48	0.0218		
48-64	0.0465		
64-76	0.0549		

Incident solar radiation: daily T 576 gm-cal/cm^2, day L 12.47 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.062; 25, 0.061; 50, 0.073; 75, 0.20; 100, 0.33; 150, 0.078.

Water column chlorophyll a: 24 mg/m^2. Phytoplankton haul taken.

Zooplankton: C N, H at 32 m, 1500-1515 GCT, 75 ml T, 75 ml S; H at 162 m, 1539-1555 GCT, 4 ml T, 4 ml S; H at 373 m, 1614-1633 GCT, 1 ml T, 1 ml S.

STATION 24
(special)

May 3, 1958; 2132-2355 GCT; 10°18'N, 108°57'W; 1280 fm; time zone 7.

Biological Data

Zooplankton: N-C N, o to 235 m, 2145-2217 GCT, 32 ml T, 32 ml S; H at 0 m, 2154-2225 GCT, 15 ml T, 15 ml S.

Nekton: o, depth missing, 2240-2348 GCT, 8 ml T.

a) Duplicate value, 2.74 µg at/L.

STATION 25
(special)

May 4, 1958; 0027-0114 GCT; 10°16'N, 109°12.5'W; 355 fm; wind, 070°, force 3; temp., 85.2°F dry, 80.7°F wet; weather, 02; clouds, 8, amt., 2; sea, 3; swell, 110°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 311 m, 0031-0103 GCT, 79 ml T, 79 ml S; H at 0 m, 0043-0113 GCT, 85 ml T, 85 ml S.

STATION 26
(special)

May 4, 1958; 0130-0259 GCT; 10°17'N, 109°14.5'W; 220 fm; time zone 7.

Biological Data

Zooplankton: N-C N, H at 19 m, 0137-0209 GCT, 57 ml T, 57 ml S; H at 0 m, 0142-0212 GCT, 107 ml T, 107 ml S.

Night-lighting operations.

STATION 27
(regular night)

May 4, 1958; 0355-0530 GCT; 10°19'N, 109°09'W; 798 fm; time zone 7.

Biological Data

Zooplankton: N-C N, o to 212 m, 0452-0525 GCT, 57 ml T, 57 ml S; H at 0 m, 0459-0529 GCT, 55 ml T, 55 ml S.

Nekton: o, depth missing, 0343-0448 GCT, 121 ml T.

STATION 28
(regular forenoon)

May 4, 1958; 1755 GCT, 10°22'N, 106°56'W; 1870 fm; wind, 050°, force 4; temp., 85.6°F dry, 80.6°F wet; weather, partly cloudy; sea, moderate; wire angle, 25°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.49	33.84	3.88	0.31	0	29.49	33.84	3.88	21.06	674	0.00
8	29.44	33.82	3.91	0.34	10	29.44	33.83	3.92	21.06	674	0.07
27	29.44	33.83	3.93	0.35	20	29.43	33.83	3.93	21.06	674	0.13
53	29.06	34.09	3.99	0.34	30	29.40	33.87	3.97	21.11	669	0.20
65	28.20	34.12	4.44	0.38	50	29.06	34.09	4.04	21.38	643	0.33
81	23.84	34.22	3.66	0.99	75	26.00	34.14	4.21	22.41	544	0.48
92	19.42	34.60	1.70	1.92a)	100	16.02	34.65	0.78	25.49	250	0.58
111	14.81	34.79	0.19	2.52	150	12.38	34.83	0.32	26.41	163	0.68
131	12.92	34.87	0.18	2.62a)	200	11.71	34.80	0.30	26.51	153	0.76
154	12.30	34.83	0.35	2.56	250	11.18	34.78	0.38	26.59	146	0.84
178	11.96	34.81	0.29	2.64	300	10.63	34.75	0.39	26.66	139	0.92
232	11.38	34.79	0.36	2.66	400	9.77	34.71	0.44	26.79	127	1.06
312	10.54	34.74	0.39	2.63	500	8.62	34.65	0.38	26.91	115	1.18
425	9.52	34.70	0.49	2.91	600	7.44	34.59	0.09	27.05	102	1.30
648	6.96	34.57	0.00	3.13a)	700	6.55	34.56	0.10	27.16	92	1.41
982	4.72	34.56	1.03	2.74	800	5.88	34.56	0.41	27.24	84	1.51
					1000	(4.60)	(34.56)	(1.09)	(27.39)	(69)	(1.68)

a) Duplicate values: 92 m, 1.82; 131 m, 2.54; 648 m, 2.89 µg at/L.

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
9-20	0.0204	10	0.041
20-39	0.0235	20	0.040
39-48	0.0392		
48-62	0.0464		

Incident solar radiation: daily T 517 gm-cal/cm^2, day L 12.47 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.11; 20, 0.083; 40, missing; 60, 0.045; 100, 0.30; 140, 0.092.

Water column chlorophyll a: 20 mg/m^2.

Zooplankton: N-C N, o to 320 m, 1900-1939 GCT, 49 ml T, 49 ml S; H at 0 m, 1910-1941 GCT, 6 ml T, 6 ml S.

STATION 29
(regular night)

May 5, 1958; 0700-0930 GCT, 10°17.5'N, 105°18'W; 1805 fm; wind, 050°, force 4; temp., 85.0°F dry, 80.0°F wet; weather, 02; clouds, 8, amt., 2; sea, 2; swell, 070°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 290 m, 0839-0913 GCT, 67 ml T, 67 ml S; H at 0 m, 0838-0908 GCT, 30 ml T, 30 ml S.

Nekton: o, depth missing, 0717-0821 GCT, 130 ml T.

Night-lighting operations.

STATION 30
(regular forenoon)

May 5, 1958; 1743 GCT; 10°14'N, 103°53.5'W; 1600 fm; wind, 070°, force 2; temp., 87.0°F dry, 80.8°F wet; weather, cloudy; sea, moderate; wire angle, 25°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.83	33.96	4.26	0.42a)	0	29.83	33.96	4.26	21.03	676	0.00
9	29.65	33.94	4.42	0.36	10	29.64	33.94	4.44	21.07	672	0.07
27	28.70	33.77	4.34	0.36	20	29.51	33.90	4.45	21.09	669	0.13
48	27.10	33.89	4.28	0.42	30	28.43	33.78	4.32	21.35	646	0.20
57	24.40	34.23	3.69	0.80	50	26.72	33.95	4.25	22.05	578	0.32
65	22.02	34.29	2.27	1.56a)	75	20.00	34.50	1.48	24.40	354	0.44
79	19.25	34.61	1.28	1.98	100	15.83	34.75	0.45	25.62	238	0.52
89	17.18	34.72	0.74	1.52a)	150	13.01	34.84	0.29	26.28	175	0.62
115	14.56	34.79	0.26	2.44	200	12.07	34.84	0.41	26.47	157	0.70
137	13.40	34.81	0.27	2.47	250	11.44	34.82	0.41	26.57	147	0.78
170	12.60	34.85	0.33	2.40a)	300	10.93	34.79	0.19	26.65	140	0.86
223	11.77	34.83	0.46	2.48	400	9.70	34.71	0.01	26.80	126	1.00
315	10.76	34.78	0.11	2.69	500	8.48	34.65	0.00	26.95	112	1.12
427	9.34	34.69	0.00	2.98a)	600	7.36	34.61	0.03	27.08	99	1.24
709	6.16	34.57	0.10	3.22a)	700	6.25	34.57	0.08	27.20	88	1.34
975	4.74	34.58	0.48	3.42	800	5.48	34.57	0.24	27.29	80	1.44
					1000	(4.64)	(34.58)	(0.50)	(27.40)	(68)	(1.60)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0100	10	0.068
20-39	0.0212	20	0.050
39-58	0.0507		
58-77	0.0768		
77-94	0.0632		

Incident solar radiation: daily T 547 gm-cal/cm^2, day L 12.43 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, missing; 20, missing; 40, 0.13; 60, 0.19; 100, 0.20; 140, 0.053.

Zooplankton: N-C N, o to 308 m, 1903-1936 GCT, 37 ml T, 37 ml S; H at 0 m, 1907-1939 GCT, 4 ml T, 4 ml S.

Phytoplankton haul taken.

STATION 31
(regular night)

May 6, 1958; 0700-0937 GCT; 10°11'N, 102°12'W; 1810 fm; wind, 050°, force 3; temp., 85.5°F dry, 80.0°F wet; weather, 02; clouds, missing; sea, 3; swell, 070°, missing; time zone 7.

a) Duplicate values: 0 m, 0.34; 65 m, 1.49; 89 m, 2.16; 170 m, 2.48; 427 m, 3.14; 709 m, 3.34 µg at/L.

Biological Data

Zooplankton: N-C N, o to 274 m, 0820-0853 GCT, 140 ml T, 140 ml S; H at 0 m, 0825-0856 GCT, 114 ml T, 114 ml S.

Nekton: o, depth missing, 0708-0812 GCT, 143 ml T.

Night-lighting operations.

STATION 32
(regular forenoon)

May 6, 1958; 1740 GCT, 10°07.5'N, 100°40.5'W; 1878 fm; wind, 070°, force 3; temp., 87.0°F dry, 81.0°F wet; weather, partly cloudy; sea, moderate; wire angle, 00°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.78	33.53	4.28	0.28	0	29.78	33.53	4.28	20.73	705	0.00
10	29.65	33.55	4.20	0.32	10	29.65	33.55	4.20	20.78	700	0.07
30	29.63	33.62	4.28	0.33	20	29.64	33.59	4.23	20.82	696	0.14
60	29.33	34.15	4.33	0.38	30	29.63	33.62	4.28	20.85	694	0.21
75	28.02	34.34	4.23	0.43	50	29.43	34.02	4.31	21.19	660	0.34
94	22.04	34.59	3.27	1.05	75	28.02	34.34	4.23	21.91	592	0.50
109	18.48	34.73	2.19	1.82	100	19.35	34.70	2.46	24.74	322	0.62
133	14.78	34.81	1.35	2.61	150	13.59	34.83	1.26	26.16	186	0.74
161	13.02	34.85	1.20	2.60	200	12.39	34.87	1.17	26.43	161	0.83
189	12.54	34.86	1.29	2.58a)	250	11.85	34.85	0.53	26.52	152	0.91
221	12.18	34.88	0.83	2.66	300	11.28	34.78	0.27	26.57	148	0.99
285	11.43	34.79	0.33	2.68	400	9.90	34.74	0.00	26.79	127	1.13
388	10.10	34.75	0.00	3.04	500	8.14	34.63	0.00	26.97	110	1.26
523	7.77	34.60	0.00	3.49	600	6.90	34.58	0.03	27.12	95	1.37
780	5.52	34.58	0.17	3.63	700	6.07	34.58	0.11	27.23	85	1.47
1143	3.88	34.59	0.70	3.49	800	5.42	34.58	0.17	27.31	77	1.56
					1000	4.48	34.58	0.49	27.42	67	1.72

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-19	0.0166	10	0.044
19-39	0.0293	20	0.042
39-56	0.0292		
56-69	0.0408		
69-87	0.0747		
87-98	0.0859		

Incident solar radiation: daily T 540 gm-cal/cm^2, day L 12.67 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.12; 15, 0.053; 25, 0.073; 40, 0.070; 60, 0.13; 90, 0.33.

Water column chlorophyll a: 16 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 295 m, 1836-1909 GCT, 72 ml T, 72 ml S; H at 0 m, 1844-1913 GCT, 12 ml T, 12 ml S.

a) Duplicate value, 2.36 µg at/L.

STATION 33
(regular night)

May 7, 1958; 0700-0930 GCT, 9°54'N, 98°40'W; 2142 fm; wind, 060°, force 3; temp., 86.5°F dry, 79.5°F wet; weather, 02; clouds, 6, amt., missing; sea, 3; swell, 070°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 298 m, 0816-0849 GCT, 101 ml T, 100 ml S; H at 0 m, 0825-0854 GCT, 134 ml T, 134 ml S.

Nekton: o, depth missing, 0705-0810 GCT, 259 ml T.

Night-lighting operations.

STATION 34
(regular forenoon)

May 7, 1958; 1743 GCT; 9°44'N, 97°14'W; 2078 fm; wind, 080°, force 1; temp., 85.5°F dry, 80.0°F wet; weather, cloudy; sea, rough; wire angle, 03°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.70	33.98	4.28	0.40	0	29.70	33.98	4.28	21.08	670	0.00
5	29.58	33.96	4.25	0.40	10	29.54	33.96	4.29	21.12	667	0.07
10	29.54	33.96	4.29	0.38	20	29.50	33.96	4.26	21.15	665	0.13
20	29.50	33.96	4.26	0.40	30	26.28	34.02	4.58	22.23	561	0.20
25	27.91	33.89	4.71	0.40	50	20.60	34.55	2.37	24.28	365	0.29
35	24.86	34.14	4.17	0.74	75	15.29	34.76	0.83	25.74	227	0.36
55	19.04	34.67	1.77	1.86	100	14.00	34.88	0.36	26.11	191	0.42
74	15.37	34.76	0.85	2.33a)	150	12.65	34.87	0.30	26.38	166	0.50
99	14.01	34.88	0.36	2.41a)	200	11.61	34.78	0.49	26.51	153	0.59
160	12.06	34.80	0.55	2.44a)	250	11.09	34.77	0.37	26.61	144	0.66
304	10.45	34.75	0.22	2.81a)	300	10.50	34.75	0.25	26.70	136	0.74
416	8.73	34.65	0.04	3.33	400	8.98	34.66	0.03	26.88	118	0.87
631	6.13	34.58	0.03	3.62	500	7.44	34.61	0.00	27.06	101	0.99
833	5.00	34.54	0.33	3.62a)	600	6.42	34.58	0.01	27.20	88	1.09
1030	4.16	34.58	0.65	3.51a)	700	5.75	34.57	0.12	27.26	82	1.19
1140	3.76	34.58	0.83	3.54	800	5.18	34.54	0.28	27.31	77	1.27
					1000	4.28	34.57	0.60	27.44	65	1.44

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0220	10	0.034
20-39	0.0654	20	0.028
39-59	0.0715		
59-77	0.0649		
77-98	0.0180		

Incident solar radiation: daily T 564 gm-cal/cm^2, day L 12.50 hr.

a) Duplicate values: 74 m, 2.40; 99 m, 2.51; 160 m, 2.53; 304 m, 2.71; 833 m, 3.70; 1030 m, 3.58 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.13; 25, 0.099; 50, 0.056; 75, 0.23; 100, 0.10; 150, 0.058.

Water column chlorophyll a: 15 mg/m^2.

Zooplankton: N-C N, o to 302 m, 1852-1925 GCT, 85 ml T, 85 ml S.

STATION 35
(regular night)

May 8, 1958; 0315-1025 GCT; 9°44.5'N, 96°04'W; 2378 fm; time zone 7.

Biological Data

Zooplankton: N-C N, o to 256 m, 0343-0416 GCT, 84 ml T, 84 ml S; H at 0 m, 0350-0420 GCT, 124 ml T, 124 ml S.

Nekton: o, depth missing, 0227-0332 GCT, 126 ml T.

Night-lighting operations.

STATION 36
(regular night)

May 9, 1958; 0600-0845 GCT, 6°30'N, 95°55'W; 2400 fm; wind, missing; temp., 83.5°F dry, 78.0°F wet; weather, 01; clouds, 0, amt., 0; sea, missing; swell, 310°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 310 m, 0718-0751 GCT, 56 ml T, 56 ml S; H at 0 m, 0732-0802 GCT, 134 ml T, 134 ml S.

Nekton: o, depth missing, 0610-0714 GCT, 268 ml T.

Night-lighting operations.

STATION 37
(regular forenoon)

May 9, 1958; 1650 GCT; 5°10'N, 95°53.5'W; 2328 fm; wind, 180°, force 3; temp., 83.8°F dry, 79.0°F wet; weather, drizzle; sea, rough; wire angle, 09°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.32	32.12	3.84	0.32a)	0	29.32	32.12	3.84	19.82	792	0.00
5	29.31	32.10	3.89	-	10	29.34	32.09	4.11	19.80	795	0.08
10	29.34	32.09	4.11	0.34	20	29.44	32.82	4.59	20.30	746	0.16
20	29.44	32.82	4.59	0.36	30	28.16	33.59	4.58	21.30	650	0.23
25	29.14	33.58	4.56	0.40	50	22.13	34.68	3.27	23.96	396	0.33
35	27.60	33.76	4.61	0.46	75	17.77	34.95	1.87	25.31	267	0.42
53	21.98	34.72	3.21	1.11	100	15.80	34.95	1.46	25.78	223	0.48
72	18.06	34.95	1.96	1.66	150	13.80	34.93	1.01	26.19	184	0.58
95	16.14	34.95	1.56	1.76	200	13.28	34.90	0.86	26.28	175	0.67
146	13.90	34.93	1.05	2.11	250	12.74	34.86	0.68	26.36	168	0.76
290	12.26	34.83	0.56	2.43a)	300	12.12	34.82	0.53	26.45	159	0.84
384	10.64	34.72	0.44	2.68	400	10.40	34.71	0.40	26.68	137	1.00
575	7.28	34.59	0.00	3.29	500	8.60	34.63	0.14	26.92	114	1.14
769	5.56	34.55	0.54	3.36	600	6.97	34.58	0.04	27.12	96	1.25
960	4.60	34.54	1.11	3.17	700	6.06	34.56	0.33	27.22	86	1.35
1065	4.20	34.56	1.34	2.76a)	800	5.37	34.55	0.65	27.29	79	1.44
					1000	4.45	34.55	1.22	27.40	69	1.61

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0358	10	0.044
20-30	0.0319	20	0.042
30-39	0.0400		
39-49	0.0670		
49-59	0.0578		

Incident solar radiation: daily T 111 gm-cal/cm^2, day L_2 12.30 hr.
(May 8, daily T 568 gm-cal/cm^2, day L 12.78 hr.)

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.18; 12, missing; 20, 0.039; 40, 0.25; 80, missing; 120, 0.16.

Water column chlorophyll a: 21 mg/m^2.

Zooplankton: N-C N, o to 288 m, 1806-1839 GCT, 31 ml T, 31 ml S; H at 0 m, 1814-1844 GCT, 25 ml T, 25 ml S.

a) Duplicate values: 0 m, 0.39; 290 m, 2.36; 1065 m, 3.17 µg at/L.

STATION 38
(special)

May 10, 1958; 0211 GCT; 4°15'N, 95°52'W; 1870 fm; wind, 180°, force 4; temp., 83.5°F dry, 78.5°F wet; weather, cloudy; sea, rough; wire angle, 21°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.02	31.83	4.61u	0.27	0	29.02	31.83		19.70	803	0.00
4	29.00	31.82	3.18	0.31	10	29.01	31.82	3.39	19.70	804	0.08
9	29.02	31.82	3.40	0.30	20	29.10	31.83	3.50	19.68	806	0.16
16	29.05	31.82	3.15	0.30	30	27.40	32.74	3.73	20.90	687	0.24
23	29.10	31.91	3.79	0.30	50	21.20	34.55	2.95	24.13	379	0.34
41	23.58	34.22	3.55	0.77	75	17.38	34.91	1.44	25.39	260	0.42
58	19.22	34.76	2.34	1.48	100	16.00	34.96	1.13	25.74	226	0.48
80	16.99	34.94	1.28	1.79	150	13.67	34.95	1.10	26.24	179	0.59
146	13.70	34.95	1.13	2.09	200	13.07	34.91	0.90	26.33	170	0.68
239	12.59	34.88	0.66	2.20a)	250	12.38	34.87	0.57	26.44	160	0.76
391	9.60	34.71	0.21	2.90	300	11.49	34.81	0.40	26.56	148	0.84
					400	(9.40)	(34.70)	(0.21)	(26.84)	(122)	(0.98)

Biological Data

Zooplankton: N-C N, o to 266 m, 0113-0146 GCT, 53 ml T, 53 ml S; H at 0 m, 0120-0151 GCT, 69 ml T, 69 ml S.

Night-lighting operations.

STATION 39
(special)

May 10, 1958; 0550 GCT; 4°49'N, 95°54'W; 1680 fm; wind, 140°, force 3; temp., 83.0°F dry, 79.5°F wet; weather, overcast; sea, rough; wire angle, 19°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.20	32.17	4.40	0.28	0	29.20	32.17	4.40	19.90	785	0.00
4	29.19	32.19	4.30	0.31	10	29.23	32.18	4.24	19.90	785	0.08
9	29.22	32.18	4.23	0.28	20	29.26	32.22	4.41	19.91	783	0.16
16	29.22	32.19	4.34	0.32	30	29.10	32.94	4.48	20.52	726	0.23
23	29.28	32.24	4.48	0.30	50	23.47	34.46	4.21	23.40	449	0.35
41	24.68	34.14	4.40	0.62	75	17.65	34.97	2.23	25.36	263	0.44
59	20.37	34.76	2.98	1.03	100	15.92	35.00	1.77	25.79	222	0.50
82	17.02	35.01	2.01	1.60b)	150	14.17	34.96	1.48	26.14	188	0.60
154	14.03	34.95	1.46	2.06	200	13.30	34.93	1.15	26.30	174	0.70
252	12.59	34.90	0.75	2.16b)	250	12.60	34.90	0.77	26.42	162	0.78
409	10.32	34.74	0.25	2.76	300	11.89	34.86	0.48	26.52	152	0.87
					400	10.46	34.75	0.26	26.70	136	1.02

a) Duplicate value, 2.44 µg at/L.
b) Duplicate values: 82 m, 1.33; 252 m, 2.44 µg at/L.

STATION 40
(special)

May 10, 1958; 0928 GCT, 5°24'N, 95°55'W; 1900 fm; wind, 210°, force 1; temp., 80.4°F dry, 77.4°F wet; weather, overcast; sea, slight; wire angle, 08°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn m
0	29.20	32.02	4.55	0.38	0	29.20	32.02	4.55	19.78	796	0.00
5	29.20	32.03	4.48	0.35	10	29.22	32.06	4.58	19.82	793	0.08
10	29.22	32.06	4.58	0.32	20	29.22	33.65	4.70	21.00	679	0.16
18	29.24	33.33	4.71	0.37	30	25.50	34.29	4.63	22.64	522	0.22
25	29.58	34.16	4.88	0.40	50	23.00	34.66	3.92	23.70	420	0.32
44	24.55	34.54	4.46	0.67	75	18.57	34.97	2.40	25.14	284	0.41
64	19.41	34.93	2.68	1.47	100	16.53	35.00	1.80	25.65	235	0.47
87	17.32	34.99	2.00	1.71	150	14.13	34.99	1.38	26.18	185	0.58
162	13.78	34.98	1.33	2.00	200	13.30	34.96	1.18	26.32	171	0.67
261	12.50	34.92	0.85	2.23	250	12.66	34.93	0.92	26.43	161	0.76
421	9.92	34.76	0.21	2.34	300	11.93	34.88	0.65	26.54	151	0.84
					400	10.27	34.78	0.28	26.76	130	0.99

STATION 41
(special)

May 10, 1958; 1257 GCT; 5°58'N, 95°56'W; 1950 fm; wind, 240°, force 1; temp., 82.8°F dry, 78.0°F wet; weather, overcast; sea, moderate; wire angle, 13°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn m
0	29.24	32.17	4.40	0.33	0	29.24	32.17	4.40	19.88	787	0.00
5	29.26	32.18	4.45	0.36	10	29.34	32.23	4.58	19.90	784	0.08
10	29.34	32.23	4.58	0.32							
17	28.92	33.58	4.50	0.40							
42a)	25.52	34.53	-	-							
62	21.58	34.85	-	-							
137	14.02	34.94	-	-							
238	12.79	34.88	-	-							
395	10.64	34.74	-	-							

a) Pretrip; depth too uncertain for interpolation.

STATION 42
(regular forenoon)

May 10, 1958; 1641 GCT; 6°35.5'N, 95°57'W; 1915 fm; wind, direction missing, force 1; temp. 83.8°F dry, 78.8°F wet; weather, overcast; sea, moderate; wire angle, 19°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.66	33.12	4.44	0.34	0	29.66	33.12	4.44	20.46	731	0.00
4	29.64	33.10	4.50	0.36	10	29.62	33.20	4.46	20.53	724	0.07
9	29.64	33.19	4.45	0.34	20	29.20	33.58	4.53	20.95	684	0.14
19	29.24	33.57	4.53	0.35	30	28.20	33.62	4.62	21.33	648	0.21
23	29.03	33.58	4.55	0.36	50	23.26	34.70	3.96	23.65	425	0.32
32	27.18	33.68	4.70	0.45	75	19.46	34.78	2.20	24.76	320	0.41
50	23.26	34.70	3.96	0.74	100	14.39	34.79	1.63	25.96	205	0.48
67	20.07	34.70	2.72	1.42	150	13.28	34.91	1.21	26.28	175	0.57
88	15.27	34.74	1.71	1.99a)	200	12.72	34.89	1.02	26.39	165	0.66
133	13.46	34.91	1.25	2.20	250	12.07	34.87	0.78	26.49	155	0.74
263	11.92	34.86	0.71	2.52	300	11.27	34.80	0.46	26.59	146	0.82
344	10.58	34.72	0.16	2.58	400	9.78	34.68	0.05	26.76	130	0.97
517	8.38	34.62	0.00	3.33	500	8.60	34.63	0.00	26.92	115	1.10
695	6.22	34.57	0.15	3.60	600	7.34	34.60	0.04	27.07	100	1.21
877	5.06	34.52	0.61	3.54	700	6.17	34.57	0.19	27.21	87	1.32
977	4.66	34.56	0.72	3.64	800	5.49	34.53	0.46	27.27	81	1.41
					1000	(4.57)	(34.58)	(0.72)	(27.42)	(67)	(1.58)

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.13; 5, 0.089; 15, 0.091; 30, 0.13; 50, 0.14; 100, 0.18.

Water column chlorophyll a: 14 mg/m^2.

Zooplankton: N-C N, o to 309 m, 1756-1829 GCT, 86 ml T, 86 ml S; H at 0 m, 1755-1825 GCT, 77 ml T, 77 ml S.

a) Duplicate value, 1.88 µg at/L.

STATION 43
(special)

May 11, 1958; 0040 GCT; 7°43'N, 95°57'W; 2050 fm; wind, 210°, force 3; temp., 85.5°F dry, 81.0°F wet; weather, drizzle; sea, moderate; wire angle, 30°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.40	33.63	3.91	0.34	0	30.40	33.63	3.91	20.63	715	0.00
4	30.39	33.66	3.95	0.38	10	30.38	33.68	3.40	20.68	710	0.07
8	30.39	33.68	3.39	0.36	20	29.90	33.85	4.51	20.92	687	0.14
15	30.17	33.81	4.11	0.37	30	27.78	34.02	4.64	21.76	606	0.21
21	29.86	33.86	4.59	0.19	50	20.80	34.60	2.24	24.26	367	0.30
37	26.38	34.08	4.65	0.32	75	15.30	34.74	0.57	25.72	228	0.38
49	21.06	34.58	2.37	1.50	100	13.18	34.80	0.36	26.23	180	0.43
64	16.80	34.70	0.84	2.30	150	12.15	34.80	0.48	26.44	160	0.52
117	12.63	34.82	0.31	2.62	200	11.38	34.77	0.81	26.56	149	0.60
200	11.38	34.77	0.81	2.54a)	250	10.82	34.74	0.70	26.62	143	0.67
346	9.99	34.69	0.41	2.93	300	10.35	34.71	0.53	26.69	136	0.74

Biological Data

Night-lighting operations.

STATION 44
(special)

May 11, 1958; 0622 GCT; 7°12.5'N, 95°52.5'W; 2400+ fm; wind, 200°, force 2; temp., 83.4°F dry, 79.8°F wet; weather, partly cloudy; sea, moderate; wire angle, 25°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.94	33.67	4.13	0.24b)	0	29.94	33.67	4.13	20.77	700	0.00
4	29.93	33.68	4.21	0.38	10	29.95	33.66	2.94	20.77	701	0.07
9	29.96	33.66	2.93	0.38	20	29.60	33.71	3.80	20.92	686	0.14
16	29.85	33.68	3.38	0.33	30	28.00	33.86	4.12	21.58	624	0.20
23	29.28	33.75	4.28	0.36	50	23.38	34.37	2.99	23.36	453	0.31
40	26.29	33.95	3.88	0.54	75	16.80	34.66	1.60	25.32	266	0.40
56	21.60	34.61	2.38	1.24	100	14.58	34.73	1.07	25.88	213	0.46
76	16.77	34.66	1.61	1.94	150	12.26	34.81	0.52	26.42	162	0.56
135	12.58	34.83	0.45	2.56b)	200	11.55	34.78	0.78	26.52	152	0.64
224	11.24	34.76	0.87	2.52	250	10.98	34.75	0.79	26.60	144	0.71
373	9.89	34.70	0.09	2.98	300	10.48	34.72	0.54	26.67	138	0.79

Biological Data

Night-lighting operations.

a) Duplicate value, 2.44 µg at/L.
b) Duplicate values: 0 m, 0.15; 135 m, 2.46 µg at/L.

STATION 45
(regular forenoon)

May 11, 1958; 1656 GCT; 6°51.5'N, 94°29'W; 1940 fm; wind, 290°, force 3; temp., 84.0°F dry, 79.0°F wet; weather, cloudy; sea, moderate; wire angle, 17°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn m
0	29.70	32.98	4.05	0.32	0	29.70	32.98	4.05	20.34	742	0.00
4	29.70	32.98	4.01	0.18	10	29.75	33.02	4.00	20.35	742	0.07
9	29.74	33.01	4.00	0.18	20	29.75	33.46	4.10	20.70	708	0.15
19	29.76	33.46	4.06	0.36	30	28.75	33.67	4.71	21.17	662	0.22
24	29.54	33.53	4.46	0.37	50	23.90	34.22	3.64	23.10	478	0.33
33	28.12	33.77	4.83	0.42	75	19.91	34.70	2.90	24.58	337	0.43
52	23.49	34.30	3.48	1.03	100	14.60	34.70	1.68	24.85	216	0.50
69	20.87	34.70	3.03	1.22	150	13.00	34.89	1.09	26.33	170	0.60
91	15.20	34.68	1.86	1.86a)	200	12.25	34.84	0.83	26.43	161	0.68
146	13.08	34.90	1.14	2.18	250	11.60	34.78	0.65	26.52	152	0.76
277	11.25	34.76	0.57	2.52	300	10.99	34.74	0.56	26.60	145	0.84
378	9.95	34.69	0.49	2.77	400	9.65	34.68	0.45	26.78	128	0.99
578	7.40	34.58	0.03	3.44	500	8.40	34.62	0.19	26.94	113	1.12
763	5.78	34.54	0.28	3.46	600	7.15	34.57	0.05	27.08	99	1.23
951	4.67	34.58u	0.78	3.45	700	6.25	34.55	0.18	27.19	89	1.34
1057	4.26	34.54u	0.93	3.34	800	5.54		0.37			
					1000	4.45		0.83			

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0317	10	0.032
20-29	0.0401	20	0.033
39-52	0.0717		
52-69	0.0766		

Incident solar radiation: daily T 355 gm-cal/cm^2, day L 11.90 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.11; 5, 0.14; 15, 0.14; 30, 0.14; 50, 0.33; 100, 0.21.

Water column chlorophyll a: 23 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 312 m, 1816-1849 GCT, 63 ml T, 63 ml S; H at 0 m, 1823-1854 GCT, 37 ml T, 37 ml S.

STATION 46
(regular night)

May 12, 1958; 0600-0907 GCT; 7°22'N, 92°47'W; 1893 fm; wind, 180°, force 3; temp., 83.8°F dry, 79.9°F wet; weather, 02; clouds, missing; sea, 1; swell, 180°, missing; time zone 6.

a) Duplicate value, 1.98 µg at/L.

Biological Data

Zooplankton: N-C N, o to 284 m, 0739-0812 GCT, 87 ml T, 87 ml S; H at 0 m, 0752-0824 GCT, 242 ml T, 242 ml S.

Nekton: o, depth missing, 0628-0732 GCT, 292 ml T.

Night-lighting operations.

STATION 47
(regular forenoon)

May 12, 1958; 1711 GCT; 8°01.5'N, 91°32'W; 2265 fm; wind, 250°, force 1; temp., 87.2°F dry, 81.0°F wet; weather, partly cloudy; sea, moderate; wire angle, 12°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.82	33.89	4.38	0.37	0	29.82	33.89	4.38	20.97	681	0.00
10	29.60	33.90	4.31	0.40	10	29.60	33.90	4.31	21.06	673	0.07
29	27.49	33.92	4.76	0.40	20	29.43	33.90	4.33	21.12	668	0.13
53	22.22	34.40	2.76	1.35a)	30	27.37	33.93	4.57	21.82	601	0.20
63	20.61	34.68	2.49	1.41	50	25.05	34.21	3.92	22.75	511	0.31
72	18.33	34.72	1.25	1.89	75	17.70	34.74	0.99	25.16	282	0.41
89	15.99	34.78	0.61	2.27a)	100	15.30	34.79	0.51	25.78	223	0.47
103	15.13	34.79	0.49	2.29	150	12.83	34.86	0.40	26.32	171	0.57
136	13.20	34.83	0.39	2.34	200	11.98	34.83	0.41	26.48	156	0.66
162	12.62	34.87	0.41	2.38	250	11.27	34.79	0.18	26.58	146	0.73
202	11.98	34.83	0.41	2.48	300	10.61	34.75	0.05	26.67	138	0.81
264	11.06	34.78	0.08	2.64	400	9.38	34.68	0.08	26.83	123	0.95
372	9.78	34.70	0.09	2.77a)	500	7.60	34.61	0.00	27.05	102	1.07
502	7.58	34.61	0.00	3.45a)	600	6.58	34.59	0.09	27.16	92	1.17
820	5.08	34.57	0.36	3.45	700	5.77	34.58	0.23	27.25	83	1.27
1107	3.93	34.59	0.87	3.26a)	800	5.18	34.57	0.34	27.32	76	1.36
					1000	4.35	34.58	0.66	27.44	65	1.52

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0430	10	0.043
20-38	0.0536	20	0.046
38-56	0.0846		
56-72	0.0697		
72-87	0.0696		

Incident solar radiation: daily T 533 gm-cal/cm^2, day L 12.38 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.19; 10, 0.16; 20, 0.19; 40, 0.28; 60, 0.83; 100, 0.17.

Water column chlorophyll a: 43 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 299 m, 1826-1859 GCT, 106 ml T, 106 ml S; H at 0 m, 1832-1903 GCT, 16 ml T, 16 ml S.

a) Duplicate values: 53 m, 1.28; 89 m, 2.20; 372 m, 2.89; 502 m, 3.38; 1107 m, 3.19 μg at/L.

STATION 48
(regular night)

May 13, 1958; 0600-0855 GCT, 9°08'N, 90°12'W; 1855 fm; wind, 100°, force 2; temp., 83.9°F dry, 80.2°F wet; weather, 02; clouds, 8, amt., 2; sea, 2; swell, 110°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 279 m, 0727-0800 GCT, 167 ml T, 163 ml S; H at 0 m, 0739-0809 GCT, 322 ml T, 322 ml S.

Nekton: o, depth missing, 0615-0718 GCT, 371 ml T.

Night-lighting operations.

STATION 49
(in situ productivity and regular night)

May 13, 1958; 2255 GCT; 9°48.5'N, 89°14.5'W; 1850 fm; wind, 040°, force 3; temp., 84.2°F dry, 79.9°F wet; weather, partly cloudy; sea, rough; wire angle, 35°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.40	34.52	4.65	0.44a)	0	28.40	34.52	4.65	21.93	590	0.00
2	28.40	34.52	4.55	0.47	10	27.27	34.52	4.51	22.29	555	0.06
5	28.42	34.52	4.88	0.45	20	18.30	34.72	3.20	25.01	296	0.10
7	28.26	34.52	4.63	0.48	30	16.27	34.78	0.93	25.54	245	0.13
10	27.27	34.52	4.51	0.50a)	50	14.45	34.82	0.76	25.98	204	0.17
12	25.10	34.57	5.52	0.50	75	13.36	34.86	0.74	26.24	179	0.22
15	21.21	34.57	4.88	0.68	100	12.87	34.86	0.83	26.33	170	0.27
22	17.78	34.75	2.86	1.54	150	12.35	34.82	0.60	26.40	164	0.35
28	16.56	34.77	1.25	2.02	200	11.81	34.79	0.48	26.48	156	0.43
33	15.96	34.81	0.84	2.07	250	11.18	34.76	0.61	26.58	146	0.51
38	15.26	34.83	0.79	2.25							
47	14.64	34.82	0.79	2.20							
63	13.78	34.86	0.69	2.29							
94	12.98	34.86	0.85	2.34							
168	12.16	34.81	0.45	2.44							
256	11.09	34.76	0.63	2.45							

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.146	10	0.022
20-38	0.0792	20	0.025
38-49	0.0795		
49-82	0.0487		

Incident solar radiation: daily T 568 gm-cal/cm^2, day L 12.50 hr.

a) Duplicate values: 0 m, 0.36; 10 m, 0.43 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.46; 4, 0.41; 8, 0.65; 10, 1.0; 20, 0.62; 40, 0.46; 80, 0.17.

Water column chlorophyll a: 40 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 346 m, 2032-2105 GCT, 270 ml T, 270 ml S; o to 302 m, 0150-0223 GCT, 314 ml T, 299 ml S.

Nekton: o, depth missing, 0244-0348 GCT, 452 ml T.

Night-lighting operations.

STATION 50
(regular forenoon)

May 14, 1958; 1700 GCT; 7°42'N, 88°08'W; 1840 fm; wind, 180°, force 1; temp., 86.9°F dry, 80.9°F wet; weather, partly cloudy; sea, moderate; wire angle, 23°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.98	34.04	3.98	0.39	0	29.98	34.04	3.98	21.04	675	0.00
9	29.49	34.04	4.05	0.41	10	29.49	34.06	4.06	21.21	658	0.07
18	29.58	34.11	4.10	0.41	20	29.30	34.13	4.11	21.33	647	0.13
41	22.88	34.41	3.56	0.95	30	27.50	34.23	4.00	22.03	580	0.19
60	17.30	34.74	1.10	2.04	50	20.30	34.57	2.59	24.37	357	0.29
68	16.36	34.79	1.03	2.08	75	16.23	34.79	0.78	25.55	244	0.36
85	14.76	34.77	0.62	2.33	100	13.78	34.81	0.62	26.11	191	0.42
98	13.84	34.82	0.58	2.35	150	12.97	34.90	0.73	26.35	169	0.51
127	13.18	34.88	0.74	2.35	200	12.43	34.86	0.74	26.41	163	0.60
149	12.98	34.90	0.73	2.29	250	11.80	34.81	0.45	26.50	154	0.68
180	12.67a)	34.88	0.81	2.31	300	11.03	34.76	0.53	26.61	144	0.76
233	12.02	34.83	0.44	2.49	400	9.43	34.66	0.43	26.80	126	0.90
328	10.60	34.74	0.59	2.68	500	8.22	34.61	0.31	26.94	113	1.02
443	8.88	34.63	0.34	3.13	600	7.09	34.58	0.30	27.10	97	1.14
740	5.88	34.56	0.33	3.34	700	6.18	34.56	0.32	27.22	86	1.24
1025	4.50	34.52	0.77	3.32b)	800	5.52	34.55	0.42	27.28	80	1.33
					1000	4.60	34.52	0.73	27.37	72	1.51

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0387	10	0.032
20-39	0.0706	20	0.031
39-49	0.126		
49-61	0.0465		
61-77	0.0477		

Incident solar radiation: daily T 604 gm-cal/cm^2, day L 12.75 hr.

a) Alternate value, 12.52°C, uncertain.
b) Duplicate value, 3.42 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.14; 15, 0.16; 30, 0.20; 50, 0.75; 90, missing; 140, 0.16.

Water column chlorophyll a: 48 mg/m^2. Phytoplankton haul taken.

Zooplankton: N-C N, o to 301 m, 1811-1845 GCT, 90 ml T, 90 ml S; H at 0 m, 1819-1848 GCT, 18e ml T, 18e ml S.

STATION 51
(regular night)

May 15, 1958; 0605-0830 GCT; 5°55.5'N, 87°16'W; 1310 fm; wind, 010°, force 4; temp., 81.8°F dry, 79.0°F wet; weather, 02; clouds, missing; sea, missing; swell, 010°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 306 m, 0736-0809 GCT, 252 ml T, 252 ml S; H at 0 m, 0744-0813 GCT, 139e ml T, 131e ml S.

Nekton: o, depth missing, 0613-0722 GCT, 142 ml T.

STATION 52
(special)

May 15, 1958; 1130-1325 GCT; 5°31.5'N, 87°21.5'W; 1175 fm; wind, 010°, force 3; temp., 80.0°F dry, 78.0°F wet; weather, 50; clouds, 6, amt., 10; sea, 2; swell, 010°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 280 m, 1138-1211 GCT, 67 ml T, 67 ml S; H at 0 m, 1146-1215 GCT, 58e ml T, 58e ml S.

Nekton: o, depth missing, 1225-1325 GCT, 42 ml T.

STATION 53
(special)

May 15, 1958; 1405-1610 GCT; 5°33.5'N, 87°04.5'W; 45 fm; time zone 6.

Incident solar radiation: daily T 140 $gm\text{-}cal/cm^2$, day L 11.80 hr.

Biological Data

Zooplankton: N-C N, H at 63 m, 1525-1559 GCT, 105 ml T, 105 ml S; H at 0 m, 1535-1555 GCT, 152e ml T, 152e ml S.

Nekton: H at 20 m, 1411-1512 GCT, 26 ml T.

STATION 54
(regular night)

May 16, 1958; 0136-0435 GCT; 5°32.5'N, 87°22.5'W; 1150 fm; wind, 240°, force 2; temp., 83.1°F dry, 78.9°F wet; weather, missing; clouds, 6, amt., 6; sea, 2; swell, 190°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 280 m, 0144-0217 GCT, 68 ml T, 68 ml S; H at 0 m, 0150-0220 GCT, 138 ml T, 138 ml S.

Nekton: o, depth missing, 0234-0339 GCT, 209 ml T.

Night-lighting operations.

STATION 55
(special)

May 16, 1958; 0530-0723 GCT; 5°34'N, 87°05.5'W; 50 fm; time zone 6.

Biological Data

Zooplankton: N-C N, H at 60 m, 0642-0714 GCT, 167 ml T, 167 ml S; H at 0 m, 0650-0720 GCT, 210 ml T, 210 ml S.

Nekton: H at 20 m, 0535-0635 GCT, 43 ml T.

STATION 56
(regular night and in situ productivity)

May 16, 1958; 1220 GCT; 5°31.5'N, 86°43'W; 1250 fm; wind, 180°, force 3; temp., 83.8°F dry, 77.8°F wet; weather, overcast; sea, moderate; wire angle, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.96	32.31	4.11	0.24	0	28.96	32.31	4.11	20.10	766	0.00
5	28.95	32.30	4.21	0.30	10	29.12	32.38	4.14	20.08	767	0.08
10	29.12	32.38	4.14	0.30	20	29.82	33.04	4.23	20.34	742	0.15
20	29.82	33.04	4.23	0.32	30	27.86	33.57	4.44	21.37	643	0.22
24	28.66	33.40	4.48	0.38	50	22.80	34.72	3.21	23.82	409	0.33
34	27.22	33.73	4.38	0.47	75	18.81	34.76	2.05	24.90	306	0.42
53	21.82	34.76	3.00	1.16	100	15.70	34.78	1.47	25.67	233	0.48
72	19.28	34.76	2.17	1.50	150	13.43	34.90	0.78	26.25	178	0.59
95	16.54	34.75	1.61	1.85	200	12.72	34.86	0.63	26.39	164	0.67
123	14.12	34.86	1.01	2.05	250	11.70	34.80	0.56	26.50	154	0.76
155	13.36	34.91	0.76	2.20	300	10.86	34.74	0.53	26.62	143	0.83
299	10.87	34.74	0.53	2.58	400	9.04	34.64	0.11	26.85	121	0.97
412	8.80	34.63	0.04	3.00	500	7.73	34.61	0.14	27.03	104	1.09
627	6.67	34.59	0.29	3.29	600	6.88	34.59	0.26	27.14	94	1.20
941	4.80	34.56	0.94	3.18a)	700	6.16	34.58	0.45	27.22	86	1.30
1136	4.02	34.56	1.34	3.20	800	5.52	34.57	0.68	27.29	79	1.39
					1000	4.54	34.56	1.09	27.40	69	1.56

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-19	0.0356	10	0.032
19-28	0.0631	19	0.032

a) Duplicate value, 3.36 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.29; 5, 0.22; 15, 0.41; 30, missing; 50, 0.53; 80, 0.28; 120, 0.11.

Water column chlorophyll a: 0.41 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 276 m, 0959-1032 GCT, 101 ml T, 101 ml S; o to 281 m, 1351-1424 GCT, 85 ml T, 85 ml S; H at 0 m, 1005-1035 GCT, 95e ml T, 95e ml S; H at 0 m, 1405-1435 GCT, 70e ml T, 70e ml S. C N, H at 254 m, 1535-1554 GCT, 19 ml T, 19 ml S; H at 57 m, 1258-1314 GCT, 95 ml T, 95 ml S; H at 24 m, 1320-1335 GCT, 102 ml T, 102 ml S.

Nekton: o, depth missing, 0841-0945 GCT, 226 ml T; o, depth missing, 1445-1550 GCT, 39 ml T.

STATION 57
(regular night)

May 17, 1958; 0600-0820 GCT; 5°32'N, 85°04.5'W; time zone 6.

Biological Data

Zooplankton: N-C N, o to 293 m, 0730-0803 GCT, 79 ml T, 79 ml S; H at 0 m, 0739-0808 GCT, 115 ml T, 115 ml S.

Nekton: o, depth missing, 0625-0728 GCT, 147 ml T.

STATION 58
(regular forenoon)

May 17, 1958; 1702 GCT; 5°34'N, 83°26'W; 1750 fm; wind, direction missing, force 1; temp., 78.0°F dry, 75.6°F wet; weather, rain; sea, moderate; wire angle, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.84	32.65	4.08	0.30	0	28.84	32.65	4.08	20.37	740	0.00
10	28.98	32.94	4.20	-	10	28.98	32.94	4.20	20.56	722	0.07
20	29.10	33.21	4.14	0.29	20	29.10	33.21	4.14	20.71	707	0.14
35	25.68	33.95	4.19	0.53	30	28.00	33.59	4.17	21.36	644	0.21
54	18.16	34.82	1.74	1.79	50	22.80	34.30	3.34	23.48	442	0.32
74	15.90	34.96	1.09	1.97	75	15.86	34.96	1.09	25.76	224	0.40
92	15.25	34.96	1.09	2.06	100	15.01	34.96	0.97	25.96	206	0.46
107	14.80	34.96	0.90	2.20	150	14.05	34.94	0.75	26.15	187	0.56
139	14.20	34.94	0.78	2.27a)	200	13.38	34.94	0.60	26.29	174	0.65
166	13.85	34.94	0.70	2.23	250	12.61	34.89	0.41	26.41	163	0.74
206	13.28	34.94	0.59	2.46a)	300	11.65	34.82	0.20	26.54	150	0.82
269	12.27	34.87	0.32	2.30a)	400	9.47	34.70	0.02	26.83	123	0.96
379	9.82	34.72	0.02	2.90a)	500	8.04	34.64	0.04	27.00	106	1.09
511	7.91	34.64	0.04	3.19	600	7.07	34.62	0.19	27.12	95	1.20
831	5.60	34.59	0.51	3.21a)	700	6.38	34.60	0.36	27.21	86	1.30
1120	4.21	34.60	1.08	3.14	800	5.77	34.59	0.48	27.28	80	1.39
					1000	4.77	34.60	0.83	27.40	68	1.56

a) Duplicate values: 139 m, 2.17; 206 m, 2.35; 269 m, 2.51; 379 m, 3.01; 831 m, 3.33 µg at/L.

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0424	5	0.031
10-17	0.0455	10	0.029
17-35	0.0433	17	0.028
35-46	0.0806		
46-61	0.0783		

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.26; 50, 0.40; 90, 0.25; 115, 0.72; 130, 0.18; 140, 0.07.

Water column chlorophyll a: 49 mg/m^2.

Zooplankton: N-C N, o to 248 m, 1814-1847 GCT, 74 ml T, 74 ml S; H at 0 m, 1820-1850 GCT, 79e ml T, 79e ml S.

STATION 59
(regular night)

May 18, 1958; 0600-0848 GCT; 5°34'N, 81°28.5'W; depth, missing; wind, 180°, force 1; temp., 83.0°F dry, 79.0°F wet; weather, 02; clouds, 6, amt., 8; sea, 2; swell, 180°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 253 m, 0722-0755 GCT, 171 ml T, 148 ml S; H at 0 m, 0734-0754 GCT, 515e ml T, 479e ml S.

Nekton: o, depth missing, 0615-0717 GCT, 332 ml T.

Night-lighting operations.

STATION 60
(regular forenoon)

May 18, 1958; 1658 GCT; 5°31'N, 79°54.5'W; 1640 fm; wind, 190°, force 3; temp., 79.9°F dry, 77.1°F wet; weather, cloudy; sea, moderate; wire angle, 25°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	26.85	32.92	4.09	0.39a)	0	26.85	32.92	4.09	21.23	658	0.00
4	26.78	32.94	4.02	0.44a)	10	26.50	33.02	3.75	21.41	640	0.06
8	26.63	32.97	3.87	0.41	20	22.90	34.15	3.02	23.36	453	0.12
18	23.86	33.95	3.22	0.82	30	18.68	34.78	1.38	24.96	301	0.16
22	19.94	34.69	1.86	1.48	50	16.89	34.94	1.19	25.52	247	0.21
31	18.57	34.79	1.36	1.72	75	16.27	34.98	1.24	25.69	231	0.27
48	16.98	34.93	1.20	1.79a)	100	15.76	34.99	1.24	25.81	219	0.33
65	16.48	34.97	1.19	1.80	150	14.64	34.95	0.85	26.03	199	0.44
85	16.08	34.99	1.32	1.76	200	13.79	34.90	0.57	26.17	186	0.53
137	14.88	34.96	0.93	2.09a)	250	12.94	34.85	0.30	26.30	173	0.63
264	12.70	34.83	0.24	2.38a)							
270p	12.22	34.79	0.04	2.54							
530p	7.59	34.58	0.00	2.98							
759	6.22	34.56	0.22	3.13							
952	5.10	34.54	0.60	3.12							
1060	4.62	34.55	0.81	3.08							

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0756	10	0.030
10-18	0.0789	18	0.036
18-32	0.0898		
32-51	0.0593		
51-67	0.0507		
67-82	0.0775		

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.45; 10, 0.86; 25, 0.53; 50, 0.34; 90, 0.14; 140, 0.066.

Water column chlorophyll a: 46 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 297 m, 1810-1843 GCT; 505 ml T, 113 ml S; H at 0 m, 1820-1850 GCT, 320e ml T, 320e ml S.

STATION 61
(regular night)

May 19, 1958; 0600-0855 GCT; 5°29.5'N, 77°57'W; 2000 fm; wind, calm; temp., 81.5°F dry, 77.6°F wet; weather, 02; clouds, 6, amt., 3; sea, 2; swell, 230°, missing; time zone 6.

a) Duplicate values: 0 m, 0.49; 4 m, 0.38; 48 m, 1.86; 137 m, 1.63; 264 m, 2.29 µg at/L.

Biological Data

Zooplankton: N-C N, o to 259 m, 0828-0901 GCT, 111 ml T, 104 ml S; H at 0 m, 0838-0908 GCT, 404e ml T, 390e ml S.

Nekton: o, depth missing, 0615-0720 GCT, 265 ml T. (Incomplete, net torn.)

Night-lighting operations.

STATION 62
(in situ productivity)

May 19, 1958; 1156, 1733 GCT; 5°28'N, 77°46'W; 920 fm; wind, 240°, force 1; temp., 81.2°F dry, 77.0°F wet; weather, cloudy; sea, slight; wire angle, 13°, 30°; time zone 5.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	27.56	32.38	3.82	0.33	0	27.56	32.38	3.82	20.59	718	0.00
10	27.62	32.57	3.66	0.38	10	27.62	32.57	3.66	20.70	707	0.07
20	27.46	33.26	3.56	0.44	20	27.46	33.26	3.56	21.28	652	0.14
39	26.86	33.53	3.42	0.58	30	27.46	33.27	3.56	21.30	650	0.20
59	17.38	34.92	1.39	1.76	50	22.10	34.28	2.38	23.60	430	0.31
66	16.82	34.92	1.23	1.82	75	16.64	34.94	1.20	25.57	243	0.40
81	16.56	34.96	1.20	1.84	100	16.12	34.97	1.23	25.71	229	0.46
94	16.21	34.97	1.23	1.86	150	14.91	34.95	1.10	25.96	205	0.57
					200	13.20	34.88	0.43	26.28	175	0.67
115	15.90	34.96	1.20	1.96	250	12.06	34.83	0.23	26.46	158	0.75
139	15.43	34.96	1.11	2.00	300	11.19	34.78	0.07	26.59	145	0.83
170	14.02	34.91	0.70	2.18	400	9.30	34.67	0.00	26.83	123	0.97
227	12.47	34.85	0.27	2.50	500	7.83	34.61	0.08	27.01	106	1.10
312	10.97	34.77	0.03	2.80a)	600	6.93	34.59	0.16	27.12	95	1.20
420	8.90	34.65	0.00	3.02a)	700	6.32	34.57	0.26	27.20	88	1.31
645	6.65	34.58	0.20	3.20	800	5.75	34.56	0.43	27.26	82	1.40
974	4.82	34.55	0.80	3.20	1000	(4.68)	(34.55)	(0.88)	(27.38)	(71)	(1.58)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0685	5	0.032
10-20	0.115	10	0.027
20-36	0.775	20	0.038
36-52	0.0301		
52-68	0.0318		
68-84	0.0552		

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.60; 5, 0.60; 10, 1.1; 25, 0.36; 50, 0.12; 100, 0.10; 150, 0.12.

Water column chlorophyll a: 35 mg/m^2.

Zooplankton: N-C N, o to 301 m, 1516-1550 GCT, 80 ml T, 80 ml S; H at 0 m, 1526-1556 GCT, 1329e ml T, 1329e ml S.
C N, H at 50 m, 1418-1436 GCT, 60 ml T, 60 ml S; H at 17 m, 1451-1508 GCT, 195 ml T, 195 ml S; H at 83 m, 1802-1818 GCT, 38 ml T, 38 ml S.

a) Duplicate values: 312 m, 2.87; 420 m, 3.12 µg at/L.

STATION 63
(special)

May 20, 1958; 0500-0700 GCT; 7°24.5'N, 78°49'W; 1555 fm; wind, direction missing, force 1; temp., 82.0°F dry, 78.2°F wet; weather, 02; clouds, 6, amt., 2; sea, 1; swell, missing; time zone 5.

Biological Data

Nekton: o, depth missing, 0507-0614 GCT, 648 ml T.

Night-lighting operations.

STATION 64
(special)

May 23, 1958; 1500-1513 GCT; 8°14'N, 79°35.5'W; 43 fm; time zone 5.

Biological Data

Special phytoplankton sample.

STATION 65
(special)

May 23, 1958; 1615-1620 GCT, 8°02'N, 79°38'W; 45 fm; time zone 5.

Biological Data

Special phytoplankton sample.

STATION 66
(special)

May 23, 1958; 1730-1735 GCT, 7°48'N, 79°40.5'W; 60 fm; time zone 5.

Biological Data

Special phytoplankton sample.

STATION 67
(special)

May 23, 1958; 1845-1855 GCT; 7°35'N, 79°43'W; 75 fm; time zone 5.

Biological Data

Special phytoplankton sample.

STATION 68
(special)

May 23, 1958; 2000-2008 GCT; 7°22'N, 79°45.5'W; 236 fm; time zone 5.

Biological Data

Special phytoplankton sample.

STATION 69
(regular night)

May 24, 1958; 0500-0806 GCT; 6°42'N, 81°14'W; 1315 fm; wind, 200°, force 2; temp., 83.0°F dry, 78.8°F wet; weather, 02; clouds, missing; sea, missing; swell, 200°, missing; time zone 5.

Biological Data

Zooplankton: N-C N, o to 293 m, 0641-0714 GCT, 160 ml T, 160 ml S; H at 0 m, 0646-0716 GCT, 942 ml T, 942 ml S.

Nekton: o to 90 m, 0522-0626 GCT, 328 ml T.

Night-lighting operations.

STATION 70
(regular forenoon)

May 24, 1958; 1556 GCT; 7°15'N, 82°41'W; 1812 fm; wind, 260°, force 1; temp., 84.3°F dry, 79.0°F wet; weather, cloudy; sea, slight; wire angle, 05°; time zone 5.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.88	33.10	3.99	0.32	0	28.88	33.10	3.99	20.69	708	0.00
10	28.85	33.10	3.88	0.32	10	28.85	33.10	3.88	20.72	706	0.07
20	28.94	33.21	3.91	0.30	20	28.94	33.21	3.91	20.77	701	0.14
30	27.14	33.82	4.04	0.47	30	27.14	33.82	4.04	21.81	602	0.21
39	21.24	34.76	2.37	1.36	50	19.38	34.92	1.80	24.88	308	0.30
49	19.56	34.91	1.86	1.58	75	17.41	34.99	1.42	25.43	256	0.37
68	17.64	34.99	1.49	1.78	100	15.52	34.94	0.85	25.82	218	0.43
83	17.14	34.99	1.31	1.86	150	14.41	34.94	0.69	26.07	195	0.53
96	15.66	34.94	0.89	1.98	200	13.62	34.90	0.50	26.21	182	0.63
146	14.46	34.94	0.71	2.15	250	12.74	34.86	0.35	26.36	168	0.72
214	13.40	34.89	0.44	2.29	300	11.71	34.81	0.30	26.50	154	0.80
282	12.15	34.83	0.33	2.56a)	400	9.21	34.67	0.06	26.84	122	0.95
375	9.68	34.69	0.07	2.90	500	7.84	34.62	0.07	27.02	105	1.07
473	8.10	34.63	0.06	3.15	600	7.05	34.61	0.20	27.12	95	1.18
700	6.35	34.60	0.36	3.19	700	6.35	34.60	0.36	27.22	86	1.28
1065	4.59	34.59	0.86	3.15a)	800	5.76	34.59	0.51	27.29	79	1.37
					1000	4.87	34.59	0.78	27.39	70	1.54

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0277	5	0.027
10-20	0.0510	10	0.023
20-40	0.0830	20	0.018
40-60	0.0610		
60-77	0.0457		
77-91	0.0387		

Incident solar radiation: daily T 507 gm-cal/cm^2, day L 12.77 hr.

a) Duplicate values: 282 m, 2.48; 1065 m, 3.27 μg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.30; 5, 0.28; 15, 0.31; 25, 0.50; 50, 0.68; 100, 0.11.

Water column chlorophyll a: 43 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 261 m, 1706-1739 GCT, 90 ml T, 90 ml S; H at 0 m, 1710-1740 GCT, 74 ml T, 74 ml S.

STATION 71
(regular night)

May 25, 1958; 0500-0746 GCT; 8°28'N, 84°20.5'W; 1200 fm; wind, 330°, force 3; temp., 82.8°F dry, 78.5°F wet; weather, missing; clouds, missing; sea, 1; swell, 320°, missing; time zone 5.

Biological Data

Zooplankton: N-C N, o to 304 m, 0532-0605 GCT, 150 ml T, 150 ml S; H at 0 m, 0041-0611 GCT, 215 ml T, 215 ml S.

Nekton: o to 105 m, 0017-0623 GCT, 249 ml T.

Night-lighting operations.

STATION 72
(regular forenoon)

May 25, 1958; 1651 GCT; 9°30'N, 85°52'W; 1800 fm; wind, 210°, force 2; temp., 77.8°F dry, 75.3°F wet; weather, rain; sea, moderate; wire angle, 03°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.28	33.41	4.10	0.34	0	29.28	33.41	4.10	20.80	698	0.00
10	29.45	33.76	4.17	0.33	10	29.45	33.76	4.17	21.00	679	0.07
20	29.49	33.76	4.12	0.32	20	29.49	33.76	4.12	20.98	681	0.14
30	27.92	33.89	4.43	0.45a)	30	27.92	33.89	4.43	21.62	619	0.20
40	25.20	34.14	4.27	0.61	50	20.40	34.62	2.32	24.38	355	0.30
49	21.06	34.61	2.59	1.39	75	16.60	34.72	1.26	25.41	257	0.38
69	17.62	34.71	1.56	1.81	100	15.18	34.84	0.75	25.83	218	0.44
84	15.58	34.79	0.98	2.06	150	13.53	34.89	0.57	26.23	180	0.54
98	15.22	34.83	0.79	2.12	200	12.87	34.89	0.61	26.36	168	0.63
148	13.54	34.89	0.57	2.27a)	250	12.30	34.85	0.56	26.43	161	0.71
215	12.68	34.89	0.64	2.26	300	11.76	34.79	0.39	26.49	155	0.79
281	11.99	34.81	0.50	2.46	400	10.19	34.72	0.04	26.72	133	0.95
372	10.66	34.74	0.08	2.74	500	8.63	34.64	0.06	26.92	115	1.08
469	9.06	34.66	0.04	3.05a)	600	7.20	34.60	0.18	27.09	98	1.20
696	6.24	34.58	0.26	3.18	700	(6.21)	(34.58)	(0.29)	(27.22)	(86)	(1.30)
1062b)	4.44	34.56	0.56	3.41a)	800	(5.59)	(34.57)	(0.36)	(27.28)	(80)	(1.39)
					1000	(4.70)	(34.56)	(0.52)	(27.38)	(71)	(1.56)

a) Duplicate values: 30 m, 0.38; 148 m, 2.34; 469 m, 2.96; 1026 m, 3.33 µg at/L.
b) Alternate depth of 970 meters possible, but not probable.

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0409	5	0.032
10-20	0.0407	10	0.029
20-30	0.0533	20	0.025
30-40	0.0942		
40-50	0.0773		
50-60	0.0944		

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.21; 5, 0.22; 15, 0.19; 25, 0.18; 50, 0.65; 100, 0.21.

Water column chlorophyll a: 39 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 309 m, 1754-1827 GCT, 130 ml T, 130 ml S; H at 0 m, 1803-1832 GCT, 19 ml T, 19 ml S.

STATION 73
(regular night)

May 26, 1958; 0600-0830 GCT; 10°35.5'N, 87°29'W; 1980 fm; wind, direction missing, force 1; temp., 83.9°F dry, 79.0°F wet; weather, 02; clouds, type missing, amt., 4; sea, 1; swell, 200°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 288 m, 0720-0753 GCT, 191 ml T, 182 ml S; H at 0 m, 0726-0756 GCT, 475 ml T, 475 ml S.

Nekton: o to 80 m, 0609-0713 GCT, 389 ml T. (Incomplete, net torn.)

Night-lighting operations.

STATION 74
(regular forenoon)

May 26, 1958; 1709 GCT; 11°27'N, 88°44.5'W; 1960 fm; wind, 040°, force 3; temp., 85.9°F dry, 79.9°F wet; weather, overcast; sea, moderate; wire angle, 45°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T} 10^{-5} cm^3/g	ΔD dyn m
1	29.70	33.91	3.88	0.31	0	(29.71)	(33.90)	(3.88)	(21.03)	(676)	(0.00)
7	29.66	33.94	3.82	0.32	10	29.67	33.95	3.89	21.07	672	0.07
14	29.70	33.96	3.91	0.32	20	29.47	34.05	3.91	21.19	660	0.13
23	29.44	34.06	3.92	0.34	30	28.86	34.11	4.35	21.48	633	0.20
29	28.86	34.11	4.35	0.38	50	25.53	34.39	4.13	22.74	512	0.31
37	28.46	34.16	4.32	0.42	75	17.69	34.80	1.34	25.21	277	0.41
49	26.12	34.35	4.24	0.53	100	16.30	34.87	1.07	25.60	239	0.48
56	22.14	34.64	2.85	1.18	150	14.11	34.88	0.53	26.10	192	0.59
61	19.52	34.70	1.88	-	200	12.81	34.88	0.40	26.35	168	0.68
86	16.93	34.85	1.19	1.91a)	250	12.00	34.85	0.21	26.49	155	0.76
119	15.47	34.88	1.00	-							
155	13.90	34.88	0.50	-							
208	12.61	34.88	0.39	2.50							
267	11.79	34.83	0.11	2.73a)							
335b)	10.78	34.79	0.07	2.76							
458b)	8.89	34.66	0.05	3.13							

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0652	5	0.041
10-20	0.0284	10	0.045
20-39	0.0541	20	0.035
39-54	0.0728		
54-72	0.0509		

Incident solar radiation: daily T 243 gm-cal/cm^2, day L 13.00 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.18; 5, 0.19; 15, 0.18; 25, 0.24; 50, 0.82; 100, 0.20.

Water column chlorophyll a: 46 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 203 m, 1907-2000 GCT, 114 ml T, 114 ml S; H at 0 m, 1813-1843 GCT, 47 ml T, 47 ml S.
C N, H at 23 m, 2037-2052 GCT, 100 ml T, 100 ml S.

a) Duplicate values: 86 m, 1.83; 335 m, 2.61 µg at/L.
b) Pretrip; too uncertain for interpolation.

STATION 75
(regular night)

May 27, 1958; 0600-0845 GCT; 12°22'N, 90°06'W; 3000 fm; wind, direction missing, force 1; temp., 85.0°F dry, 78.4°F wet; weather, 02; clouds, type missing, amt., 5; sea, 1; swell, 140°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 273 m, 0728-0801 GCT, 206 ml T, 206 ml S; H at 0 m, 0735-0805 GCT, 407 ml T, 407 ml S.

Nekton: o to 83 m, 0620-0723 GCT, 533 ml T.

Night-lighting operations.

STATION 76
(regular forenoon)

May 27, 1958; 1654 GCT; 13°16'N, 91°23.5'W; 910 fm; wind, direction missing, force 1; temp., 88.0°F dry, 78.8°F wet; weather, partly cloudy; sea, slight; wire angle, 00°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	31.46	33.98	5.05	0.16	0	31.46	33.98	5.05	20.50	727	0.00
8	30.76	33.98	5.05	0.21	10	30.70	33.97	5.07	20.75	703	0.07
15	30.40	33.96	5.13	0.22	20	30.12	33.95	4.94	20.94	685	0.14
20	30.12	33.95	4.94	0.23	30	28.88	33.98	4.27	21.37	643	0.21
35	26.24	34.14	3.46	0.80	50	19.07	34.69	1.99	24.78	317	0.30
50	19.07	34.69	1.99	1.66	75	15.45	34.78	0.89	25.72	228	0.37
68	16.08	34.75	0.99	1.68	100	14.38	34.83	0.62	26.01	201	0.43
82	15.06	34.81	0.83	1.76	150	13.63	34.85	0.48	26.16	186	0.52
96	14.42	34.83	0.61	2.23	200	12.85	34.82	0.29	26.30	173	0.62
145	13.73	34.85	0.51	2.32	250	12.12	34.79	0.20	26.42	162	0.71
214	12.62	34.81	0.22	2.51	300	11.40	34.77	0.19	26.54	150	0.78
282	11.72	34.78	0.22	2.53a)	400	9.68	34.68	0.05	26.78	128	0.93
376	10.08	34.70	0.06	2.94a)	500	(8.01)	(34.61)	(0.08)	(26.98)	(108)	(1.06)
475	8.41	34.62	0.07	3.08a)	600	(6.95)	(34.58)	(0.09)	(27.12)	(95)	(1.17)
708	6.01	34.57	0.10	3.34	700	(6.06)	(34.57)	(0.10)	(27.23)	(85)	(1.27)
1068	4.24	34.56	0.20	3.34a)	800	5.46	34.57	0.12	27.30	78	(1.36)
					1000	4.54	34.56	0.18	27.40	69	(1.53)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.174	5	0.020
10-20	0.202	10	0.019
20-30	0.188		

Incident solar radiation: daily T 618 gm-cal/cm^2, day L 13.30 hr.

a) Duplicate values: 282 m, 2.64; 376 m, 2.84; 475 m, 3.16; 1068 m, 3.57 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 1.3; 5, 1.8; 15, 4.0; 25, 1.6; 50, 0.38; 100, 0.66.

Water column chlorophyll a: 120 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 295 m, 1740-1813 GCT, 117 ml T, 117 ml S; H at 0 m, 1758-1828 GCT; 150 ml T, 150 ml S.

STATION 77
(regular night)

May 27, 1958; 0550 GCT; 14°12'N, 92°47'W; 633 fm; wind, direction missing, force 1; temp., 87.0°F dry, 80.8°F wet; weather, missing; sea, slight; wire angle, 00°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.91	34.25	3.88	0.28	0	30.91	34.25	3.88	20.90	689	0.00
5	30.90	34.19	3.85	0.36	10	30.35	34.14	3.87	20.97	682	0.07
10	30.35	34.14	3.87	0.33	20	29.70	34.11	4.47	21.18	661	0.14
15	30.14	34.16	3.93	0.36	30	28.26	34.15	4.62	21.70	612	0.20
20	29.70	34.11	4.47	0.38	50	22.90	34.29	3.16	23.44	445	0.30
30	28.26	34.15	4.62	0.42	75	16.52	34.78	0.69	25.48	251	0.39
49	23.32	34.25	3.32	1.06	100	14.97	34.88	0.58	25.91	210	0.45
58	20.19	34.56	0.92	1.80	150	13.23	34.88	0.29	26.27	176	0.55
67	17.62	34.70	0.75	2.35a)	200	12.48	34.87	0.15	26.41	163	0.64
85	15.62	34.86	0.65	2.26	250	11.98	34.83	0.20	26.48	156	0.72
140	13.45	34.88	0.36	2.50	300	11.37	34.79	0.20	26.56	148	0.80
184	12.66	34.88	0.15	2.72	400	9.78	34.72	0.08	26.80	126	0.94
279	11.64	34.81	0.22	2.70	500	(7.90)	(34.64)	(0.07)	(27.03)	(104)	(1.07)
374	10.21	34.74	0.08	2.93	600	(6.94)	(34.62)	(0.08)	(27.15)	(93)	(1.17)
469	8.40	34.66	0.07	3.23a)	700	(6.22)	(34.60)	(0.10)	(27.23)	(85)	(1.27)
718	6.11	34.60	0.11	3.30							

Biological Data

Zooplankton: N-C N, o to 293 m, 0623-0656 GCT, 116 ml T, 111 ml S; H at 0 m, 0630-0700 GCT, 160 ml T, 160 ml S.

Nekton: o to 100 m, 0705-0805 GCT, 623 ml T.

a) Duplicate values: 67 m, 2.46; 469 m, 3.07 µg at/L.

STATION 78
(special)

May 28, 1958; 1417 GCT; 14°14'N, 93°48'W; 2800 fm; wind, 150°, force 1; temp., 86.8°F dry, 80.2°F wet; weather, partly cloudy; sea, slight; wire angle, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.64	34.26	4.22	0.30	0	30.64	34.26	4.22	20.97	682	0.00
5	30.65	34.14	4.31	0.31	10	30.66	34.14	4.31	20.87	691	0.07
10	30.66	34.14	4.31	0.32	20	29.08	34.04	4.77	21.34	646	0.14
15	30.26	34.11	4.34	0.34	30	27.38	34.16	4.88	21.98	585	0.20
20	29.08	34.04	4.77	0.34	50	20.30	34.48	2.27	24.30	363	0.29
29	27.52	34.15	4.90	0.40	75	16.04	34.78	0.91	25.58	242	0.37
48	21.98	34.34	2.76	1.35	100	15.20	34.80	0.57	25.79	222	0.43
67	16.74	34.77	1.34	1.79	150	13.40	34.84	0.27	26.21	182	0.53
80	15.70	34.78	0.68	2.22	200	12.45	34.84	0.13	26.40	164	0.62
99	15.24	34.80	0.58	2.24	250	11.63	34.80	0.14	26.52	152	0.70
186	12.67	34.85	0.15	2.57a)	300	10.83	34.76	0.13	26.63	142	0.78
278	11.20	34.78	0.17	2.70	400	9.21	34.66	0.09	26.84	122	0.92
367	9.83	34.69	0.08	2.82	500	7.65	34.59	0.12	27.02	105	1.04
456	8.18	34.61	0.12	3.07	600	6.88	34.56	0.10	27.11	96	1.14
685	6.29	34.54	0.08	3.30	700	(6.21)	(34.54)	(0.08)	(27.19)	(89)	(1.25)
1036	4.44	34.54	0.29	3.46	800	(5.67)	(34.54)	(0.13)	(27.25)	(83)	(1.34)
					1000	(4.62)	(34.54)	(0.27)	(27.38)	(71)	(1.52)

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.14.

Zooplankton: N-C N, o to 280 m, 1449-1522 GCT, 110 ml T, 93 ml S; H at 0 m, 1456-1526 GCT, 23 ml T, 23 ml S.

a) Duplicate value, 2.57 µg at/L.

STATION 79
(regular forenoon)

May 28, 1958; 1945 GCT; 14°37.5'N, 93°52'W; 1200 fm; wind, 340°, force 3; temp., 85.0°F dry, 79.0°F wet; weather, cloudy; sea, rough; wire angle, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn m
0	30.30	33.96	4.24	0.34	0	30.30	33.96	4.24	20.86	692	0.00
5	30.24	33.98	4.47	0.31	10	30.16	33.96	4.38	20.92	687	0.07
10	30.16	33.96	4.38	0.33	20	29.94	33.96	4.52	21.00	679	0.14
15	30.14	33.96	4.32	0.34	30	26.74	34.15	4.44	22.19	565	0.20
20	29.94	33.96	4.52	0.34	50	19.78	34.59	1.86	24.53	342	0.29
29	26.82	34.11	4.47	0.44	75	16.75	34.77	0.99	25.42	257	0.36
48	20.46	34.58	1.93	1.72	100	15.25	34.81	0.79	25.79	222	0.43
68	17.53	34.74	1.40	1.84a)	150	13.73	34.83	0.55	26.14	189	0.53
81	16.24	34.78	0.75	2.21	200	12.47	34.83	0.37	26.38	166	0.62
99	15.28	34.81	0.79	2.33	250	11.83	34.80	0.22	26.48	156	0.70
190	12.62	34.83	0.40	2.54	300	11.18	34.76	0.10	26.58	146	0.78
287	11.36	34.77	0.11	2.78	400	9.59	34.68	0.10	26.80	126	0.93
378	9.99	34.70	0.09	3.03	500	7.80	34.60	0.13	27.01	106	1.05
471	8.22	34.61	0.12	3.32a)	600	6.85	34.59	0.11	27.14	94	1.16
706	6.10	34.58	0.10	3.60	700	6.14	34.58	0.10	27.22	86	1.26
1061	4.32	34.58	0.34	3.79	800	5.59	34.58	0.14	27.29	79	1.35
					1000	4.61	34.58	0.29	27.41	68	1.52

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0486	5	0.036
10-20	0.0242	10	0.041
20-39	0.0673	20	0.033
39-58	0.120		

Incident solar radiation: daily T 519 gm-cal/cm^2, day L 13.28 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.11; 5, 0.14; 10, 0.10; 25, 0.17; 50, 1.1; 100, 0.17.

Water column chlorophyll a: 46 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 322 m, 1804-1837 GCT, 80 ml T, 74 ml S; H at 0 m, 1815-1845 GCT, 15 ml T, 15 ml S.

a) Duplicate values: 68 m, 1.96; 471 m, 3.24 µg at/L.

STATION 80
(special)

May 29, 1958; 0100 GCT; 15°13.5'N, 93°46'W; 102 fm; wind, 330°, force 1; temp., 86.4°F dry, 77.3°F wet; weather, cloudy; sea, rough; wire angle, 00°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.83	34.04	4.90	0.29	0	29.83	34.04	4.90	21.08	671	0.00
5	29.84	34.00	4.82	0.32	10	29.65	33.98	4.73	21.09	670	0.07
10	29.65	33.98	4.73	0.38	20	28.92	34.00	4.97	21.36	644	0.13
15	29.59	33.98	4.64	0.33	30	27.40	34.01	5.19	21.87	595	0.20
20	28.92	34.00	4.97	0.38	50	22.40	34.33	3.78	23.62	428	0.30
30	27.40	34.01	5.19	0.44	75	17.07	34.74	1.43	25.32	267	0.38
40	24.80	34.14	4.88	0.57	100	15.20	34.78	0.53	25.78	223	0.45
74	17.11	34.74	1.44	1.89	150	(13.60)	(34.88)	(0.18)	(26.20)	(183)	(0.55)
98	15.30	34.78	0.58	2.26							
120	14.42	34.82	0.31	2.44							
144	13.75	34.87	0.20	2.43							

Biological Data

Zooplankton: N-C N, o to 150 m, 0027-0045 GCT, 65 ml T, 65 ml S; H at 0 m, 0005-0020 GCT, 60 ml T, 60 ml S.

STATION 81
(regular night)

May 29, 1958; 0554 GCT; 14°47'N, 94°21'W; 1380 fm; wind, 340°, force 2; temp., 84.6°F dry, 78.5°F wet; weather, missing; sea, slight; wire angle, 03°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.34	33.98	3.42	0.32	0	29.34	33.98	3.42	21.20	659	0.00
5	29.33	34.00	4.24	0.32	10	29.34	33.99	3.49	21.21	658	0.06
10	29.34	33.99	3.49	0.34	20	28.86	33.96	3.05	21.35	646	0.13
15	29.35	33.98	3.15	0.34	30	25.74	34.09	4.64	22.45	540	0.19
20	28.86	33.96	3.05	0.58a)	50	19.47	34.63	1.20	24.64	331	0.28
29	25.82	34.08	4.68	0.56	75	16.59	34.79	0.83	25.47	252	0.35
48	19.88	34.60	1.30	1.81	100	14.84	34.85	0.52	25.91	210	0.41
67	17.44	34.76	0.91	2.13	150	13.50	34.87	0.32	26.21	182	0.51
81	15.96	34.81	0.76	2.37a)	200	12.43	34.86	0.19	26.42	162	0.60
100	14.84	34.85	0.52	2.44	250	11.79	34.82	0.14	26.51	153	0.68
192	12.56	34.87	0.19	2.63	300	11.19	34.78	0.10	26.59	146	0.76
289	11.31	34.78	0.11	2.78	400	9.57	34.71	0.08	26.82	124	0.90
381	9.92	34.72	0.08	3.08	500	(7.92)	(34.63)	(0.12)	(27.02)	(105)	(1.02)
474	8.18	34.64	0.11	3.37a)							
711	-	34.56	0.08	3.44a)							
1067	4.28	34.54	0.32	3.62							

a) Duplicate values: 20 m, 0.37; 81 m, 2.29; 474 m, 3.24; 711 m, 3.52 µg at/L.

Biological Data

Zooplankton: N-C N, o to 288 m, 0626-0659 GCT, 188 ml T, 188 ml S; H at 0 m, 0633-0703 GCT, 175 ml T, 175 ml S.

Nekton: o, depth missing, 0706-0817 GCT, 875 ml T.

Night-lighting operations.

STATION 82
(special)

May 29, 1958; 1421 GCT; 15°48'N, 94°53'W; 125 fm; wind, 340°, force 5; temp., 81.8°F dry, 75.5°F wet; weather, partly cloudy; sea, rough; wire angle, 35°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.38	34.04	4.58	0.32	0	28.38	34.04	4.58	21.58	623	0.00
4	28.38	34.00	4.40	0.31	10	28.40	34.01	4.50	21.55	626	0.06
8	28.40	34.00	4.50	0.32	20	27.48	34.05	5.46	21.88	595	0.12
12	28.40	34.01	4.51	0.34	30	23.15	34.29	3.79	23.37	452	0.18
16	28.38	34.03	5.05	0.35	50	19.37	34.53	1.45	24.59	336	0.25
24	25.61	34.13	5.92	0.40	75	16.32	34.72	0.88	25.48	251	0.33
32	22.81	34.31	3.44	1.13a)	100	14.86	34.82		25.89	212	0.39
59	18.00	34.62	1.02	2.00							
77	16.08	34.74	0.88	2.38							
96	14.86	34.78	0.61	2.20a)							
115	14.02	34.85	-	2.53a)							

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.15.

Zooplankton: N-C N, o to 92 m, 1440-1458 GCT, 52 ml T, 52 ml S.

a) Duplicate values: 32 m, 1.00; 96 m, 2.20; 115, 2.37 µg at/L.

STATION 83
(regular forenoon)

May 29, 1958; 2032 GCT; 15°20'N, 94°55'W; 400 fm; wind, 020°, force 2; temp., 85.2°F dry, 77.9°F wet; weather, partly cloudy; sea, moderate; wire angle, 40°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	27.94	34.14	4.60	0.32	0	27.94	34.14	4.60	21.79	603	0.00
4	27.92	34.14	3.99	0.32	10	27.80	34.12	4.06	21.82	600	0.06
8	27.83	34.13	4.31	0.30	20	27.72	34.13	3.70	21.86	597	0.12
12	27.76	34.11	3.71	0.32	30	22.24	34.34	2.58	23.67	424	0.17
16	27.76	34.12	3.86	0.32	50	19.47	34.56	1.06	24.59	336	0.25
20	27.72	34.13	3.70	0.33	75	18.00	34.76	0.40	25.11	286	0.33
30	22.24	34.34	2.58	1.36	100	14.35	34.80	0.39	25.98	204	0.39
44	20.35	34.43	1.39	1.90	150	13.05	34.83	0.22	26.27	176	0.48
52	19.16	34.59	0.94	2.08	200	12.37	34.83	0.24	26.40	164	0.57
60	18.62	34.61	0.85	2.18	250	11.88	34.79	0.11	26.47	157	0.65
96	14.54	34.79	0.40	2.48	300	11.28	34.76	0.12	26.57	148	0.73
155	12.97	34.83	0.20	2.57	400	9.74	34.69	0.14	26.78	128	0.88
188	12.48	34.83	0.25	2.58	500	7.85	34.59	0.13	27.00	107	1.01
253	11.85	34.79	0.10	2.70a)							
328	10.92	34.75	0.14	2.77							
525	7.32	34.57	0.12	3.46							

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0535	5	0.033
10-20	0.0585	10	0.034
20-39	0.160	20	0.026
39-55	0.0741		

Incident solar radiation: daily T 659 gm-cal/cm^2, day L 13.35 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.19; 5, 0.15; 15, 0.19; 25, 0.18; 50, 0.48; 100, 0.10.

Water column chlorophyll a: 28 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 266 m, 1829-1902 GCT, 63 ml T, 57 ml S; H at 0 m, 1835-1905 GCT, 34 ml T, 34 ml S.

a) Duplicate value, 2.60 µg at/L.

STATION 84
(special)

May 30, 1958; 0110 GCT; 14°40.5'N, 94°56'W; 2400 fm; wind, 330°, force 2; temp., 83.8°F dry, 79.9°F wet; weather, partly cloudy; sea, moderate; wire angle, 30°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	27.84	34.20	4.80	0.34	0	27.84	34.20	4.80	21.87	595	0.00
8	27.64	34.18	4.73	0.36	10	27.60	34.18	4.72	21.94	589	0.06
17	27.46	34.19	4.73	0.40	20	27.38	34.19	4.75	22.02	582	0.12
26	27.14	34.19	4.82	0.39	30	27.05	34.19	4.83	22.12	572	0.18
35	26.84	34.18	4.84	0.42	50	21.20	34.50	2.27	24.10	382	0.27
43	23.92	34.29	3.21	1.14	75	15.99	34.82	0.72	25.63	237	0.35
60	17.12	34.76	1.02	2.07	100	14.75	34.84	0.63	25.92	209	0.41
72	16.16	34.81	0.73	2.21a)	150	13.50	34.88	0.40	26.22	181	0.50
84	15.52	34.83	0.73	2.24	200	12.64	34.88	0.24	26.39	165	0.59
123	14.04	34.86	0.49	2.40	250	12.09	34.85	0.15	26.48	156	0.68
177	13.00	34.88	0.31	2.62	300	11.42	34.81	0.14	26.57	148	0.76
232	12.28	34.86	0.17	2.51	400	9.59	34.70	0.07	26.81	125	0.90
309	11.30	34.80	0.14	2.58	500	8.10	34.64	0.07	27.00	107	1.02
393	9.72	34.70	0.08	2.97a)	600	(6.95)	(34.60)	(0.09)	(27.12)	(95)	(1.14)
596	7.00	34.60	0.09	3.35a)	700	(6.25)	(34.58)	(0.10)	(27.21)	(87)	(1.24)
940	4.99	34.55	0.14	3.61a)	800	(5.70)	(34.56)	(0.11)	(27.27)	(81)	(1.33)
					1000	(4.72)	(34.55)	(0.13	(27.38)	(71)	(1.50)

Biological Data

Zooplankton: N-C N, o to 238 m, 2356-0031 GCT, 155 ml T, 155 ml S; H at 0 m, 0003-0039 GCT, 288 ml T, 288 ml S.

a) Duplicate values: 72 m, 2.28; 393 m, 3.11; 596 m, 3.06; 940 m, 3.35 µg at/L.

STATION 85
(regular night)

May 30, 1958; 0440 GCT; 14°12'N, 94°59.5'W; 2200 fm; wind, 300°, force 2; temp., 85.2°F dry, 80.2°F wet; weather, missing; sea, moderate; wire angle, 13°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.52	34.15	3.75	0.34	0	29.52	34.15	3.75	21.28	652	0.00
10	29.56	34.16	3.32	0.30	10	29.56	34.16	3.32	21.27	653	0.06
19	29.41	34.14	3.49	0.32	20	29.20	34.14	3.47	21.36	644	0.13
29	25.92	34.10	3.37	0.52	30	25.70	34.12	3.30	22.49	536	0.19
39	23.20	34.27	2.56	1.02	50	20.30	34.53	1.30	24.33	360	0.28
48	20.94	34.48	1.49	1.58	75	16.40	34.80	0.80	25.52	247	0.36
67	17.42	34.75	0.78	1.88	100	14.91	34.81	0.55	25.86	215	0.41
82	15.79	34.81	0.79	2.14	150	13.23	34.87	0.24	26.27	176	0.51
95	15.09	34.81	0.61	2.18	200	12.02	34.86	0.14	26.49	155	0.60
144	13.24	34.84	0.25	2.49	250	11.30	34.81	0.16	26.59	145	0.68
210	11.79	34.84	0.16	2.55	300	10.79	34.78	0.16	26.66	139	0.75
277	11.04	34.79	0.16	2.72	400	9.32	34.69	0.10	26.84	122	0.89
367	9.88	34.72	0.10	3.00	500	7.88	34.64	0.10	27.03	104	1.01
463	8.28	34.65	0.10	3.30a)	600	6.85	34.61	0.10	27.14	94	1.12
688	6.14	34.59	0.14	3.41a)	700	(6.10)	(34.59)	(0.14)	(27.24)	(84)	(1.22)
1055	4.48	34.57	0.42	3.61a)	800	(5.54)	(34.58)	(0.17)	(27.30)	(78)	(1.31)
					1000	(4.68)	(34.57)	(0.36)	(27.40)	(69)	(1.48)

Biological Data

Zooplankton: N-C N, o to 302 m, 0512-0545 GCT, 89 ml T, 84 ml S; H at 0 m, 0518-0550 GCT, 151 ml T, 151 ml S.

Nekton: o to 110 m, 0254-0400 GCT, 395 ml T.

Night-lighting operations.

a) Duplicate values: 463 m, 3.20; 688 m, 3.31; 1055 m, 3.53 μg at/L.

STATION 86
(regular forenoon)

May 30, 1958: 1432 GCT; 14°13.5'N, 95°51'W; 2170 fm; wind, 320°, force 2; temp., 84.0°F dry, 78.5°F wet; weather, cloudy; sea, slight; wire angle, 17°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.99	33.99	4.60	0.31	0	28.99	33.99	4.60	21.34	646	0.00
9	28.98	33.99	4.60	0.34	10	28.98	33.99	4.60	21.34	646	0.06
19	29.01	34.01	4.62	0.34	20	29.01	34.00	4.61	21.34	646	0.13
28	29.00	33.98	4.57	0.36	30	28.98	33.98	4.57	21.34	646	0.19
38	28.31	34.05	4.58	0.38	50	26.00	34.17	4.58	22.43	542	0.31
47	26.74	34.13	4.75	0.49	75	20.10	34.53	1.93	24.40	354	0.42
66	22.36	34.34	2.97	1.30	100	15.50	34.73	0.26	25.67	233	0.50
79	18.90	34.65	1.41	2.06	150	13.46	34.82	0.18	26.19	184	0.60
92	16.60	34.70	0.41	2.38a)	200	12.62	34.82	0.13	26.34	169	0.69
140	13.66	34.82	0.18	2.68a)	250	11.96	34.79	0.13	26.45	159	0.78
203	12.59	34.82	0.13	2.56	300	10.93	34.74	0.12	26.60	144	0.86
266	11.70	34.78	0.13	3.21a)	400	8.77	34.64	0.08	26.90	117	1.00
351	9.60	34.67	0.08	3.01a)	500	7.40	34.59	0.10	27.07	100	1.11
443	8.04	34.61	0.09	3.17a)	600	6.48	34.57	0.11	27.17	90	1.22
659	6.06	34.56	0.11	3.38a)	700	(5.83)	(34.56)	(0.14)	(27.25)	(83)	(1.31)
1016	4.37	34.58	0.32	3.66a)	800	(5.35)	(34.57)	(0.19)	(27.31)	(77)	(1.40)
					1000	(4.52)	(34.58)	(0.30)	(27.42)	(67)	(1.56)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0395	5	0.028
10-20	0.0378	10	0.031
20-30	0.0396	20	0.029
30-40	0.0594	30	0.027
40-50	0.0991		
50-60	0.200		

Incident solar radiation: daily T 540 gm-cal/cm^2, day L 13.23 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.064; 5, 0.074; 10, 0.10; 25, 0.060; 50, 0.49; 100, 0.19; 150, 0.054.

Water column chlorophyll a: 33 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 297, 1503-1536 GCT, 108 ml T, 108 ml S; H at 0 m, 1510-1540 GCT, 65 ml T, 65 ml S. C N, H at 66 m, 1550-1605 GCT, 513 ml T, 513 ml S; H at 159 m, 1834-1850 GCT, 8 ml T, 8 ml S; H at 35 m, 2030-2045 GCT, 104 ml T, 104 ml S.

a) Duplicate values: 92 m, 2.31; 140 m, 2.47; 266 m, 3.01; 351 m, 3.13; 443 m, 3.09; 659 m, 3.29; 1016 m, 3.41 µg at/L.

STATION 87
(special)

May 30-31, 1958; 2140, 0020 GCT; 13°46.5'N, 96°08'W; 2440 fm; wind, direction missing, force 1; temp., 86.7°F dry, 79.2°F wet; weather, partly cloudy; sea, moderate; wire angle, 20°, 40°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.03	34.14	4.30	0.34	0	30.03	34.14	4.30	21.12	670	0.00
9	29.70	34.13	4.29	0.33	10	29.68	34.13	4.30	21.20	660	0.07
18	29.50	34.15	4.42	0.32	20	29.46	34.16	4.43	21.30	650	0.13
28	29.04	34.16	4.40	0.34	30	28.87	34.17	4.44	21.49	631	0.20
37	28.27	34.23	4.67	0.40	50	22.50	34.42	2.92	23.65	425	0.30
46	24.19	34.34	3.76	0.94	75	16.82	34.69	0.37	25.34	264	0.39
64	18.22	34.60	0.63	2.33	100	14.21	34.79	0.10	26.00	202	0.45
78	16.58	34.70	0.32	2.60	150	12.82	34.81	0.10	26.29	174	0.54
91	14.80	34.76	0.10	2.24a)	200	12.03	34.79	0.09	26.44	160	0.63
118p	13.36	34.82	0.12	2.78a)	250	11.20	34.76	0.06	26.57	148	0.71
244p	11.24	34.76	0.07	2.93	300	10.39	34.71	0.04	26.68	137	0.78
349p	9.52	34.66	0.08	3.14	400	8.72	34.62	0.08	26.89	117	0.91
596p	6.46	34.54	0.07	3.55	500	7.30	34.57	0.07	27.07	101	1.03
					600	(6.43)	(34.54)	(0.07)	(27.16)	(92)	(1.14)
813	5.28	34.54	0.22	3.41a)	700	(5.88)	(34.54)	(0.11)	(27.22)	(86)	(1.24)
1170	3.84	34.60	0.64	3.48	800	(5.40)	(34.54)	(0.20)	(27.28)	(80)	(1.33)
1449	3.10	34.61	1.09	3.39	1000	4.50	34.57	0.44	27.42	67	(1.49)
1825	2.47	34.63	1.66	3.18	1200	3.76	34.60	0.67	27.52	58	(1.64)
2205	1.99	34.63	2.15	3.04	1500	3.01	34.61	1.20	27.60	50	(1.83)
2590	1.90	34.65	2.31	2.94	2000	2.22	34.63	1.90	27.68	43	(2.12)
2819	1.88	34.67	2.58	2.86a)							
3197	1.88	34.67	1.72u	2.96							
3503	1.88	34.66	2.37	2.84							
3597	1.90	34.65	2.41	2.92							

Biological Data

Zooplankton: N-C N, o to 261 m, 2212-2245 GCT, 64 ml T, 64 ml S; H at 0 m, 2220-2250 GCT, 102 ml T, 102 ml S.

Nekton: o, depth missing, 0152-0300 GCT, 224 ml T.

a) Duplicate values: 91 m, 2.68; 118 m, 2.77; 813 m, 3.30; 2819 m, 2.96 μg at/L.

STATION 88
(in situ productivity)

May 31, 1958; 1227 GCT; 15°11'N, 96°55'W; 2130 fm; wind, 320°, force 3; temp., 85.3°F dry, 80.3°F wet; weather, cloudy; sea, moderate; wire angle, 25°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.84	34.05	3.04	0.32	0	29.84	34.05	3.04	21.07	672	0.00
9	29.84	34.04	2.95	0.32	10	29.84	34.04	2.96	21.08	671	0.07
18	29.86	34.05	3.11	0.34	20	29.85	34.04	3.12	21.08	671	0.13
27	29.80	34.07	3.14	0.34	30	29.70	34.09	3.23	21.15	665	0.20
36	28.58	33.91	4.66	0.39	50	27.65	33.98	4.80	21.77	606	0.33
44	28.08	33.92	4.87	0.63a)	75	24.80	34.23	3.66	22.84	502	0.47
61	26.50	34.11	4.32	0.70	100	17.50	34.64	0.62	25.14	284	0.57
74	25.27	34.22	3.87	0.80	150	13.55	34.83	0.20	26.16	186	0.68
86	20.47	34.45	1.47	1.94	200	12.38	34.81	0.16	26.39	165	0.77
129	14.39	34.82	0.23	2.55	250	11.66	34.77	0.12	26.49	155	0.85
182	12.70	34.83	0.17	2.66	300	10.88	34.73	0.09	26.61	144	0.93
238	11.82	34.78	0.13	2.64a)	400	9.32	34.66	0.08	26.82	124	1.07
310	10.72	34.72	0.08	2.77a)	500	7.92	34.62	0.08	27.02	105	1.19
389	9.46	34.67	0.08	2.98a)	600	(6.92)	(34.60)	(0.10)	(27.14)	(94)	(1.30)
582	7.04	34.60	0.10	3.35a)	700	(6.21)	(34.60)	(0.13)	(27.23)	(85)	(1.40)
909	4.88	34.60	0.20	3.52	800	(5.56)	(34.60)	(0.17)	(27.31)	(77)	(1.49)
					1000	(4.36)	(34.60)		(27.45)	(64)	(1.65)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
10-20	0.0306	10	0.039
20-29	0.0244	20	0.049
29-40	0.0475		
40-60	0.0550		
60-73	0.0921		
73-79	0.0486		
79-82	0.0540		

Incident solar radiation: daily T 521 gm-cal/cm^2, day L 13.25 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.49; 5, 0.30; 10, 0.14; 25, (0.27); 50, 0.22; 80, 0.28; 140, 0.16.

Water column chlorophyll a: 34 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 269 m, 1533-1606 GCT, 127 ml T, 127 ml S; H at 0 m, 1539-1609 GCT, 37 ml T, 37 ml S. C N, H at 94 m, 1306-1321 GCT, 175 ml T, 175 ml S; H at 38 m, 1440-1455 GCT, 239 ml T, 239 ml S; H at 12 m, 1507-1523 GCT, 39 ml T, 39 ml S; H at 61 m, 1616-1631 GCT, 194 ml T, 162 ml S.

Night-lighting operations.

a) Duplicate values: 44 m, 0.41; 238 m, 2.78; 310 m, 2.87; 389 m, 3.07; 582 m, 3.26 µg at/L.

STATION 89
(special)

May 31, 1958; 2235 GCT; 15°12'N, 96°03.5'W; 2660 fm; wind, 220°, force 5; temp., 87.0°F dry, 80.0°F wet; weather, partly cloudy; sea, moderate; wire angle, 30°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.56	34.06	4.23	0.54	0	30.56	34.06	4.23	20.85	693	0.00
9	30.06	34.04	3.52	0.35	10	30.05	34.04	3.53	21.03	676	0.07
18	29.90	34.01	4.43	0.36	20	29.83	34.00	4.46	21.06	673	0.14
26	29.35	33.98	4.55	0.36	30	29.03	33.99	4.67	21.34	647	0.20
34	28.76	34.02	4.78	0.35	50	26.14	34.14	4.41	22.38	547	0.32
42	27.86	34.03	4.69	0.38	75	19.00	34.55	0.66	24.70	325	0.43
58	24.66	34.27	4.21	0.75	100	15.02	34.76	0.20	25.80	221	0.50
69	21.00	34.45	1.59	1.84	150	13.12	34.84	0.19	26.26	177	0.60
78	18.28	34.59	0.45	2.37	200	12.18	34.82	0.13	26.43	161	0.68
115	13.94	34.81	0.17	2.61	250	11.47	34.78	0.10	26.54	151	0.77
165	12.84	34.84	0.20	2.60	300	10.89	34.74	0.09	26.61	144	0.84
215	11.92	34.81	0.10	2.69	400	9.38	34.65	0.08	26.80	125	0.98
282	11.16	34.76	0.10	2.86	500	8.00	34.59	0.09	26.98	109	1.11
352	10.08	34.69	0.08	3.05	600	(7.04)	(34.56)	(0.10)	(27.08)	(99)	(1.22)
526	7.68	34.58	0.09	3.36	700	(6.30)	(34.54)	(0.09)	(27.18)	(90)	(1.33)
830	5.36	34.53	0.09	3.44	800	(5.58)	(34.53)	(0.09)	(27.26)	(82)	(1.42)

Biological Data

Zooplankton: N-C N, o to 295 m, 2306-2340 GCT, 40 ml T, 40 ml S; H at 0 m, 2312-2342 GCT, 78 ml T, 78 ml S.

STATION 90
(regular night)

June 1, 1958; 0335 GCT; 15°15'N, 95°22.5'W; 1360 fm; wind, 260°, force 1; temp., 86.2°F dry, 80.3°F wet; weather, partly cloudy; sea, moderate; wire angle, 12°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.32	34.18	4.35	0.26	0	30.32	34.18	4.35	21.02	677	0.00
10	30.28	34.16	4.38	0.29	10	30.28	34.16	4.38	21.04	675	0.07
19	29.00	34.14	4.48	0.30	20	29.00	34.14	4.48	21.44	636	0.13
29	28.33	34.14	4.62	0.35	30	28.33	34.14	4.63	21.66	615	0.20
38	28.24	34.14	4.83	0.35	50	25.28	34.22	3.45	22.68	518	0.31
48	26.92	34.17	4.78	0.46	75	18.00	34.56	0.76	24.96	301	0.41
66	19.86	34.47	1.26	1.92	100	15.17	34.73	0.47	25.75	226	0.48
79	17.06	34.63	0.48	2.29	150	13.15	34.81	0.21	26.23	179	0.58
92	15.60	34.72	0.51	2.35	200	12.27	34.80	0.20	26.40	164	0.67
142	13.38	34.81	0.22	2.54	250	11.58	34.78	0.16	26.51	153	0.75
209	12.16	34.80	0.19	2.61	300	10.94	34.74	0.12	26.60	144	0.83
277	11.24	34.76	0.13	2.68a)	400	9.42	34.65	0.09	26.79	126	0.97
369	9.88	34.67	0.09	2.95a)	500	7.97	34.59	0.08	26.98	109	1.10
467	8.42	34.61	0.08	3.16a)	600	6.98	34.55	0.07	27.09	98	1.21
695	6.26	34.53	0.08	3.48a)	700	(6.23)	(34.53)	(0.08)	(27.17)	(90)	(1.31)
1053	4.44	34.55	0.31	3.56	800	(5.67)	(34.53)	(0.14)	(27.24)	(84)	(1.41)
					1000	(4.69)	(34.55)	(0.28)	(27.38)	(71)	(1.58)

a) Duplicate values: 277 m, 2.81; 369 m, 2.87; 467 m, 3.23; 695 m, 3.41 µg at/L.

Biological Data

Zooplankton: N-C N, o to 272 m, 0410-0443 GCT, 143 ml T, 143 ml S; H at 0 m, 0418-0448 GCT, 146 ml T, 146 ml S.

Nekton: o to 72 m, 0458-0604 GCT, 242 ml T.

Night-lighting operations.

STATION 91
(special)

June 1, 1958; 0952 GCT; 14°40.5'N, 95°20'W; 2300 fm; wind, direction missing, force 1; temp., 85.3°F dry, 80.3°F wet; weather, partly cloudy; sea, moderate; wire angle, 20°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	$\delta_{T_{-5}}^{3}$ 10^{-5} cm/g	ΔD dyn m
0	30.16	34.12	4.25	0.24	0	30.16	34.12	4.25	21.03	676	0.00
8	30.10	34.11	4.39	0.27	10	30.10	34.10	4.39	21.05	674	0.07
17	29.67	34.09	4.49	0.27	20	28.85	34.09	4.66	21.45	635	0.13
26	27.95	34.07	4.75	0.33	30	27.15	34.13	4.69	22.04	579	0.19
33	26.49	34.15	4.59	0.45	50	19.40	34.55	2.11	24.65	330	0.28
40	24.55	34.16	3.77	0.72	75	16.30	34.73	0.80	25.50	250	0.36
52	18.38	34.62	1.81	1.82	100	14.97	34.81	0.63	25.85	216	0.42
62	16.93	34.70	0.93	2.16	150	13.18	34.86	0.47	26.27	176	0.52
72	16.43	34.72	0.83	2.16	200	12.36	34.87	0.14	26.44	160	0.60
109	14.31	34.81	0.65	2.18	250	11.70	34.82	0.22	26.53	152	0.68
159	13.02	34.87	0.43	2.44	300	11.10	34.77	0.31	26.60	144	0.76
210	12.21	34.87	0.10	2.56	400	9.65	34.70	0.08	26.79	126	0.90
280	11.36	34.79	0.32	2.68	500	8.05	34.63	0.10	27.00	107	1.03
358	10.30	34.73	0.08	2.82a)							
551	7.18	34.60	0.14	3.39							
871b)	5.17	34.56	0.20	3.44							

Biological Data

Zooplankton: N-C N, o to 282 m, 0840-0914 GCT, 116 ml T, 116 ml S; H at 0 m, 0849-0918 GCT, 936 ml T, 670 ml S.

a) Duplicate value, 2.89 µg at/L.
b) Unprotected thermometer malfunctioned; depth determined by extrapolation of wire profile curve.

STATION 92
(special)

June 1, 1958; 1516 GCT; 14°40'N, 96°08'W; 2070 fm; wind, direction missing, force 1; temp., 85.0°F dry, 79.0°F wet; weather, partly cloudy; sea, slight; wire angle, 28°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.07	34.11	4.54	0.23	0	30.07	34.11	4.54	21.06	673	0.00
8	30.01	34.11	4.88	0.28	10	30.00	34.08	4.88	21.07	672	0.07
17	29.97	34.07	4.89	0.30	20	29.50	34.05	4.75	21.20	659	0.13
26	29.25	34.05	4.64	0.30	30	29.18	34.05	4.60	21.32	649	0.20
35	29.08	34.05	4.57	0.29	50	28.45	34.10	4.62	21.60	622	0.33
44	28.68	34.07	4.76	0.33	75	24.70	34.25	4.30	22.92	495	0.47
61	27.83	34.07	4.96	0.40	100	16.39	34.68	0.58	25.43	256	0.56
73	25.50	34.20	4.75	0.74	150	13.50	34.84	0.24	26.18	184	0.67
85	19.98	34.48	1.39	1.85a)	200	12.27	34.84	0.18	26.44	160	0.76
124	14.42	34.78	0.37	2.48a)	250	11.46	34.79	0.18	26.55	150	0.84
174	12.82	34.87	0.17	2.53a)	300	10.70	34.74	0.12	26.64	141	0.91
216	12.00	34.83	0.19	2.66	400	9.10	34.67	0.10	26.86	120	1.05
298	10.76	34.74	0.12	2.81	500	7.78	34.61	0.10	27.03	104	1.17
379	9.44	34.68	0.10	3.33a)	600	6.65	34.57	0.12	27.15	92	1.28
570	6.92	34.58	0.12	3.31	700	5.96	34.56	0.11	27.24	84	1.38
885	5.01	34.56	0.08	3.34	800	5.44	34.56	0.10	27.29	79	1.47
					1000	(4.46)	(34.56)		(27.41)	(68)	(1.63)

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.11.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 260 m, 1555-1618 GCT, 146 ml T, 146 ml S; H at 0 m, 1610-1640 GCT, 18 ml T, 18 ml S.

a) Duplicate values: 85 m, 1.95; 124 m, 2.34; 174 m, 2.45; 379 m, 3.02 µg at/L.

STATION 93
(special)

June 1, 1958; 1950 GCT; 14°17.5'N, 96°21.5'W; 2100 fm; wind, direction missing, force 1; temp., 89.0°F dry, 80.0°F wet; weather, partly cloudy; sea, slight; wire angle, 28°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.86	33.98	3.99	0.14	0	30.86	33.98	3.99	20.70	708	0.00
8	30.25	33.95	3.56	0.28	10	30.25	33.95	3.53	20.89	690	0.07
17	30.20	33.95	3.51	0.32	20	29.30	34.02	3.92	21.24	656	0.14
26	29.10	34.04	3.88	0.32	30	29.00	34.07	3.88	21.38	642	0.20
35	28.88	34.11	3.91	0.30	50	27.92	34.09	3.79	21.76	606	0.33
44	28.11	34.09	4.05	0.31	75	25.20	34.21	3.60	22.73	513	0.47
61	27.03	34.12	3.37	0.44	100	17.20	34.65	0.90	25.22	276	0.57
73	25.62	34.18	3.77	0.66	150	13.65	34.81	0.17	26.13	189	0.68
86	21.56	34.42	2.24	1.52	200	12.55	34.83	0.19	26.38	166	0.77
128	14.50	34.78	0.18	2.53	250	11.67	34.77	0.15	26.49	155	0.85
176	13.00	34.83	0.20	2.54	300	10.84	34.70	0.13	26.58	147	0.93
216	12.26	34.83	0.17	2.65	400	9.02	34.61	0.13	26.83	123	1.08
294	10.97	34.70	0.14	2.81	500	7.70	34.56	0.13	26.99	108	1.20
368	9.58	34.63	0.13	3.06	600	(6.75)	(34.53)	(0.13)	(27.10)	(97)	(1.31)
546	7.18	34.54	0.16	3.36	700	(6.08)	(34.53)	(0.11)	(27.19)	(89)	(1.41)
861	5.10	34.53	0.08	3.50	800	(5.47)	(34.53)	(0.09)	(27.27)	(81)	(1.51)
					1000	(4.30)	(34.53)		(27.40)	(69)	(1.68)

Incident solar radiation: daily T 618 gm-cal/cm^2, day L 13.40 hr.

Biological Data

Zooplankton: N-C N, o to 248 m, 1843-1916 GCT, 87 ml T, 87 ml S; H at 0 m, 1849-1919 GCT, 14 ml T, 14 ml S.

STATION 94
(special)

June 1-2, 1958; 2340, 0130 GCT; 13°56.5'N, 96°49'W; 2200 fm; wind, direction missing, force 1; temp., 87.0°F dry, 79.2°F wet; weather, partly cloudy; sea, slight; wire angle, 05°, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	30.00	34.01	4.45	0.26	0	30.00	34.01	4.45	21.00	678	0.00
10	29.50	34.03	4.34	0.27	10	29.50	34.03	4.34	21.20	660	0.07
20	29.42	34.04	4.28	0.26	20	29.42	34.04	4.28	21.23	658	0.13
30	29.23	34.01	4.29	0.28	30	29.23	34.01	4.29	21.26	654	0.20
39	29.10	33.96	4.30	0.28	50	28.60	34.08	4.43	21.54	628	0.33
49	28.72	34.07	4.42	0.32	75	21.40	34.36	2.38	23.92	400	0.46
68	23.33	34.22	3.66	0.90	100	16.20	34.66	0.20	25.46	254	0.54
81	19.76	34.47	0.98	2.00	150	12.97	34.80	0.10	26.26	177	0.64
95	17.66	34.59	0.31	2.30a)	200	12.04	34.77	0.08	26.42	162	0.73
146	13.08	34.80	0.10	2.58	250	11.30	34.73	0.08	26.52	152	0.81
213	11.84	34.76	0.08	2.69	300	10.66	34.68	0.08	26.61	144	0.89
283	10.85	34.70	0.08	2.88	400	9.10	34.61	0.08	26.82	124	1.03
375	9.54	34.63	0.08	2.94a)	500	7.59	34.57	0.09	27.03	104	1.15
473	7.96	34.58	0.08	3.22	600	6.65	34.54	0.10	27.12	95	1.26
700	5.86	34.52	0.14	3.36	700	5.86	34.52	0.14	27.21	87	1.36
1061	4.16	34.52u	0.42	3.58a)	800	5.29	34.52	0.20	27.28	80	1.45
					1000	4.40	34.52	0.32	27.38	71	1.62
1004	4.40	34.54u	0.32	3.32	1200	3.71	34.56	0.72	27.48	61	1.77
1401	3.18	34.59	1.21	3.20a)	1500	2.98	34.59	1.36	27.59	51	1.97
1706	2.59	34.68u	1.59	3.02a)	2000	2.12	34.65	2.13	27.70	41	2.26
2097	2.01	34.63	2.19	2.92a)							
2490	1.84	34.65	2.46	2.82a)							
2894	1.88	34.63	2.67	2.88							
3066p	1.90	34.65	2.58	2.71							
3773p	1.92	34.64	1.39u	2.74a)							
3993p	1.94	34.65	2.58	-							

Biological Data

Zooplankton: N-C N, o to 284 m, 0010-0043 GCT, 126 ml T, 126 ml S; H at 0 m, 0016-0046 GCT, 70 ml T, 70 ml S.

Nekton: o to 72 m, 0314-0419 GCT, 266 ml T.

Night-lighting operations.

a) Duplicate values: 95 m, 2.46; 375 m, 3.01; 1061 m, 3.34; 1401 m, 3.33; 1706 m, 2.95; 2097 m, 2.73; 2490 m, 2.89; 3773 m, 2.84 µg at/L.

STATION 95
(regular forenoon)

June 2, 1958; 1950 GCT; 15°36'N, 98°43'W; 2280 fm; wind, 320°, force 2; temp., 86.0°F dry, 80.5°F wet; weather, partly cloudy; sea, slight; wire angle, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T} 10^{-5} cm^3/g	ΔD dyn m
0	29.90	34.28			0	29.90	34.28		21.24	656	0.00
10	29.63	34.29			10	29.63	34.29		21.33	647	0.06
20	29.48	34.29			20	29.48	34.29		21.38	642	0.13
30	29.26	34.29			30	29.26	34.29		21.46	635	0.19
39	27.36	34.16			50	25.92	34.26		22.53	532	0.31
49	25.98	34.25			75	19.20	34.62		24.70	325	0.42
67	20.10	34.49			100	15.98	34.74		25.58	242	0.49
80	18.00	34.61			150	13.22	34.85		26.25	178	0.59
94	16.26	34.71			200	12.24	34.85		26.45	159	0.68
142	13.54	34.85			250	11.46	34.77		26.54	151	0.76
209	12.12	34.85			300	10.69	34.72		26.64	141	0.84
250p	11.42	34.77			400	8.99	34.64		26.86	120	0.98
368	9.57	34.67			500	7.45	34.58		27.04	103	1.09
464	7.78	34.59			600	6.76	34.56		27.12	95	1.20
687	6.24	34.55			700	(6.17)	(34.55)		(27.20)	(88)	(1.30)
1052	4.36	34.56			800	(5.53)	(34.55)		(27.26)	(82)	(1.40)
					1000	(4.62)	(34.56)		(27.39)	(70)	(1.57)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)	Depth (m)	Alpha
5-10	0.0304	5	0.034
10-20	0.0315	10	0.033
20-29	0.0337	20	0.032
29-39	0.0384		
39-58	0.114		
58-76	0.102		

Incident solar radiation: daily T 640 gm-cal/cm^2, day L 13.55 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.21; 5, 0.098; 10, 0.080; 25, missing; 50, 0.28; 100, missing.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 301 m, 1800-1833 GCT, 71 ml T, 71 ml S; H at 0 m, 1810-1840 GCT, 18 ml T, 18 ml S.

STATION 96
(regular night)

June 3, 1958; 0400-0540 GCT; 16°34'N, 99°44'W; 460 fm; wind, 310°, force 2; temp., 86.0°F dry, 79.4°F wet; weather, 02; clouds, 8, amt., 1; sea, 1; swell, 310°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 145 m, 0524-0540 GCT, 108 ml T, 108 ml S; H at 0 m, 0525-0540 GCT, 74 ml T, 74 ml S.

Nekton: o to 115 m, 0409-0514 GCT, 313 ml T.

Night-lighting operations.

STATION 97
(special)

June 6, 1958; 0215-0315 GCT; 16°44'N, 100°00'W; 490 fm; time zone 6.

Incident solar radiation: daily T 596 gm-cal/cm^2, day L 13.77 hr.
(June 3, daily T 553 gm-cal/cm^2, day L 13.52 hr.)
(June 4, daily T 629 gm-cal/cm^2, day L 13.65 hr.)

Biological Data

Night-lighting operations.

STATION 98
(special)

June 6, 1958; 0420-0745 GCT; 16°35'N, 100°10'W; 1440 fm; time zone 6.

Biological Data

Nekton: o to 100 m, 0635-0740 GCT, 365 ml T.

Night-lighting operations.

STATION 99
(special)

June 6, 1958; 0815-0912 GCT; 16°25'N, 100°20'W; 1940 fm; wind, direction missing, force 1; temp., 84.7°F dry, 79.3°F wet; weather, 00; clouds, missing; sea, 2; swell, 140°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 137 m, 0853-0909 GCT, 826 ml T, 108 ml S; H at 0 m, 0851-0906 GCT, 148 ml T, 148 ml S.

STATION 100
(regular forenoon)

June 6, 1958; 1330 GCT; 16°04'N, 100°44'W; 2030 fm; wind, 200°, force 1; temp., 78.4°F dry, 76.7°F wet; weather, thunderstorm; sea, smooth; wire angle, 10°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn m
0	30.04	34.19	3.66	0.30	0	30.04	34.19	3.66	21.12	667	0.00
10	30.06	34.22	3.78	0.30	10	30.06	34.22	3.78	21.14	666	0.07
20	29.88	34.20	3.62	0.30	20	29.88	34.20	3.62	21.19	661	0.13
29	28.80	34.14	3.92	0.32	30	28.60	34.14	3.98	21.57	624	0.20
39	27.06	34.22	4.58	0.42a)	50	25.10	34.37	4.34	22.86	501	0.31
49	25.74	34.33	4.62	0.47	75	18.91	34.57	0.73	24.74	322	0.41
68	20.19	34.52	1.30	1.88	100	16.76	34.65	0.20	25.32	267	0.49
83	18.00	34.60	0.42	2.34a)	150	13.08	34.83	0.07	26.26	177	0.60
97	17.00	34.64	0.22	2.51	200	12.13	34.78	0.07	26.42	162	0.68
148	13.15	34.83	0.07	2.65	250	11.39	34.74	0.07	26.52	152	0.76
218	11.85	34.77	0.07	2.76	300	10.77	34.71	0.07	26.61	144	0.84
287	10.93	34.72	0.07	2.90	400	9.30	34.63	0.08	26.80	126	0.98
380	9.61	34.64	0.08	3.12	500	(8.00)	(34.59)	(0.07)	(26.98)	(109)	(1.11)
480	8.22	34.60	0.07	3.15	600	(6.99)	(34.56)	(0.07)	(27.10)	(97)	(1.22)
706	5.93	34.53	0.08	3.39a)	700	(5.98)	(34.53)	(0.08)	(27.21)	(87)	(1.32)
1070	4.12	34.53	0.41	3.40a)	800	5.32	34.53	0.15	27.28	80	(1.42)
					1000	4.38	34.53	0.34	27.40	69	(1.58)

Incident solar radiation: daily T 303 gm-cal/cm^2, day L 11.97 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.15; 5, 0.13; 10, 0.083; 25, missing; 50, 0.12; 100, 0.096.

Water column chlorophyll a: 11 mg/m^2.

Zooplankton: N-C N, o to 270 m, 1411-1444 GCT, 48 ml T, 48 ml S; H at 0 m, 1416-1446 GCT, 39 ml T, 39 ml S. C N, H at 141 m, 1505-1520 GCT, 37 ml T, 31 ml S; H at 95 m, 1536-1552 GCT, 159 ml T, 159 ml S; H at 65 m, 1832-1855 GCT, 282 ml T, 282 ml S.

STATION 101
(special)

June 6, 1958; 2116-2237 GCT; 15°35'N, 100°49'W; 1880 fm; wind, 130°, force 3; temp., 84.8°F dry, 79.8°F wet; weather, 50; clouds, 9, amt., 8; sea, 3; swell, 140°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 156 m, 2152-2207 GCT, 107 ml T, 107 ml S; H at 0 m, 2213-2228 GCT, 17 ml T, 17 ml S.

a) Duplicate values: 39 m, 0.73; 83 m, 2.22; 706 m, 3.28; 1070 m, 3.49 µg at/L.

STATION 102
(special)

June 7, 1958; 1030-1120 GCT; 17°24'N, 101°25'W; 270 fm; wind, 150°, force 1; temp., 84.6°F dry, 78.1°F wet; weather, 00; clouds, 8, amt., 7; sea, 2; swell, 150°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 127 m, 1044-1100 GCT, 121 ml T, 121 ml S; H at 0 m, 1044-1059 GCT, 564 ml T, 564 ml S.

STATION 103
(special)

June 7, 1958; 1415-1528 GCT; 17°07'N, 100°59'W; 150 fm; wind, direction missing, force 1; temp., 84.0°F dry, 78.0°F wet; weather, 03; clouds, 8, amt., 7; sea, 2; swell, 160°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 104 m, 1450-1516 GCT, 119 ml T, 119 ml S; H at 0 m, 1454-1511 GCT, 45 ml T, 45 ml S.

STATION 104
(regular forenoon)

June 7, 1958; 2027 GCT; 17°03'N, 101°26'W; 580 fm; wind, direction missing, force 1; temp., 86.1°F dry, 78.8°F wet; weather, cloudy; sea, high; wire angle, 30°; time zone 6.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	29.84	34.49	3.84	0.32	0	29.84	34.49	3.84	21.42	638	0.00
8	29.45	34.45	4.00	0.34	10	29.31	34.44	4.03	21.53	628	0.06
17	28.36	34.37	4.16	0.34	20	25.94	34.30	4.16	22.54	531	0.12
26	25.16	34.30	4.12	0.48	30	24.47	34.30	3.93	22.99	488	0.17
34	22.22	34.39	2.19	1.30	50	19.49	34.53	0.83	24.57	338	0.25
42	20.36	34.47	1.14	1.84a)	75	17.92	34.60	0.46	25.00	297	0.34
58	18.78	34.56	0.65	2.10	100	15.61	34.71	0.27	25.63	236	0.40
69	18.28	34.58	0.56	2.23	150	13.88	34.83	0.13	26.10	192	0.51
79	17.32	34.62	0.39	2.29a)	200	12.80	34.84	0.05	26.32	171	0.60
119	14.62	34.78	0.22	2.50	250	11.80	34.80	0.06	26.49	155	0.69
175	13.36	34.85	0.05	2.64a)	300	10.97	34.73	0.10	26.59	146	0.77
230	12.16	34.82	0.05	2.72	400	9.56	34.65	0.12	26.78	128	0.91
306	10.86	34.72	0.11	2.84	500	8.29	34.60	0.10	26.94	113	1.04
388	9.72	34.66	0.13	3.04	600	(7.20)	(34.57)	(0.10)	(27.07)	(100)	(1.15)
580	7.37	34.57	0.10	3.30	700	(6.43)	(34.55)	(0.11)	(27.16)	(92)	(1.26)
901	5.05	34.52	0.16	3.48	800	(5.75)	(34.53)	(0.13)	(27.24)	(84)	(1.36)
					1000	(4.46)	(34.51)		(27.38)	(71)	(1.53)

Incident solar radiation: daily T 503 gm-cal/cm^2, day L 13.37 hr.

a) Duplicate values: 42 m, 1.91; 79 m, 2.37; 175 m, 2.71 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.17; 5, 0.18; 10, 0.18; 25, 0.30; 50, 1.2; 100, 0.14.

Water column chlorophyll a: 64 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 243 m, 1835-1908 GCT, 142 ml T, 142 ml S; H at 0 m, 1839-1909 GCT, 165 ml T, 165 ml S.

STATION 105
(special)

June 8, 1958; 0028-0108 GCT; 16°36'N, 101°50'W; 2270 fm; wind, 090°, force 5; temp., 85.9°F dry, 78.7°F wet; weather, 02; clouds, 6, amt., 8; sea, 3; swell, 100°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 130 m, 0046-0102 GCT, 160 ml T, 160 ml S; H at 0 m, 0047-0105 GCT, 59 ml T, 59 ml S.

STATION 106
(special)

June 8, 1958; 0345-0438 GCT; 16°19'N, 102°12'W; depth, missing; wind, 140°, force 5; temp., 84.0°F dry, 78.2°F wet; weather, 50; clouds, type missing, amt., 9; sea, 3; swell, 140°, missing; time zone 6.

Biological Data

Zooplankton: N-C N, o to 130 m, 0355-0411 GCT, 248 ml T, 248 ml S; H at 0 m, 0358-0414 GCT, 134 ml T, 134 ml S.

STATION 107
(special)

June 8, 1958; 1135-1210 GCT; 17°39.5'N, 101°44.5'W; 200 fm; wind, 330°, force 3; temp., 83.0°F dry, 79.0°F wet; weather, 02; clouds, 6, amt., 8; sea, 1; swell, 170°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 113 m, 1149-1204 GCT, 175 ml T, 175 ml S; H at 0 m, 1153-1208 GCT, 139 ml T, 139 ml S.

STATION 108
(special)

June 8, 1958; 1415-1458 GCT; 17°50'N, 102°21.5'W; 160 fm; wind, 180°, force 2; temp., 84.5°F dry, 79.0°F wet; weather, 02; clouds, 6, amt., 8; sea, 2; swell, 180°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 115 m, 1431-1446 GCT, 263 ml T, 256 ml S; H at 0 m, 1450-1501 GCT, 263 ml T, 263 ml S.

STATION 109
(regular forenoon)

June 8, 1958; 2013 GCT; 17°56'N, 102°48'W; 100 fm; wind, 090°, force 3; temp., 83.5°F dry, 79.0°F wet; weather, missing; sea, high; wire angle, 20°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.54	34.47		0.30	0	28.54	34.47	21.8	21.84	598	0.00
10	28.09	34.47		0.34	10	28.09	34.47		21.99	584	0.06
28	25.66	34.40		0.50	20	27.13	34.45		22.29	555	0.12
47	24.78	34.42		0.59	30	25.28	34.41		22.83	503	0.17
70	20.67	34.51		1.76	50	23.78	34.44		23.30	458	0.26
94	16.74	34.70		2.40	75	19.80	34.54	24.4	24.49	346	0.37
116	15.76	34.74		2.47	100	16.39	34.71		25.45	254	0.44
146	14.04	34.78		2.44	150	(13.88)	(34.77)		(26.05)	(197)	(0.56)

Incident solar radiation: daily T 166 gm-cal/cm^2, day L 13.27 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.35; 5, 0.32; 10, 0.24; 25, 0.52; 50, 0.65; 100, 0.25.

Water column chlorophyll a: 46 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 243 m, 1907-1940 GCT, 100 ml T, 100 ml S; H at 0 m, 1912-1952 GCT, 73 ml T, 73 ml S.

STATION 110
(special)

June 8, 1958; 2300-2345 GCT; 17°36'N, 103°08'W; depth, missing; wind, 150°, force 4; temp., 81.7°F dry, 79.4°F wet; weather, 02; clouds, 6, amt., 9; sea, 3; swell, 150°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 141 m, 2324-2339 GCT, 106 ml T, 106 ml S; H at 0 m, 2326-2341 GCT, 148 ml T, 148 ml S.

STATION 111
(special)

June 9, 1958; 0220-0339 GCT; 17°15'N, 103°25'W; 2100 fm; wind, 110°, force 7; temp., missing; weather, 02; clouds, type missing, amt., 9; sea, 4; swell, 110°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 118 m, 0247-0302 GCT, 235 ml T, 204 ml S; H at 0 m, 0250-0307 GCT, 68 ml T, 68 ml S.

STATION 112
(special)

June 9, 1958; 0622-0705 GCT; 16°54'N, 103°41'W; depth, missing; wind, 140°, force 6; temp., missing; weather, 02; clouds, type missing, amt., 9; sea, 4; swell, 140°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 108 m, 0530-0545 GCT, 148 ml T, 148 ml S; H at 0 m, 0536-0551 GCT, 57 ml T, 57 ml S.

STATION 113
(special)

June 11, 1958; 0152-0256 GCT; 17°30'N, 101°33'W; time zone 7.

Incident solar radiation: daily T 581 gm-cal/cm^2, day L 13.78 hr.
(June 9, daily T 562 gm-cal/cm^2, day L 13.63 hr.)

Biological Data

Night-lighting operations.

STATION 114
(special)

June 11, 1958; 0458-0602 GCT; 17°39'N, 102°00'W; time zone 7.

Biological Data

Night-lighting operations.

STATION 115
(special)

June 11, 1958; 0802-0859 GCT; 17°36.5'N, 102°23'W; time zone 7.

Biological Data

Night-lighting operations.

STATION 116
(special)

June 11, 1958; 1101-1155 GCT; 17°49'N, 103°38.5'W; time zone 7.

Biological Data

Night-lighting operations.

STATION 117
(special)

June 12, 1958; 0042-0115 GCT; 16°18'N, 104°14'W; 1720 fm; wind, 260°, force 3; temp., 84.7°F dry, 80.0°F wet; weather, 01; clouds, type missing, amt., 2; sea, 2; swell, 250°, missing; time zone 7.

Incident solar radiation: daily T 687 gm-cal/cm^2, day L 14.03 hr.

Biological Data

Zooplankton: N-C N, o to 117 m, 0052-0107 GCT, 87 ml T, 85 ml S; H at 0 m, 0056-0112 GCT, 100 ml T, 100 ml S.

STATION 118
(special)

June 12, 1958; 0325-0558 GCT; 16°37'N, 104°36.5'W; 1600 fm; wind, 270°, force 4; temp., 81.8°F dry, 71.0°F wet; weather, 02; clouds, type missing, amt., 1; sea, 2; swell, 270°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 130 m, 0518-0533 GCT, 354 ml T, 343 ml S; H at 0 m, 0520-0536 GCT, 394 ml T, 394 ml S.

Nekton: o to 83 m, 0401-0536 GCT, 278 ml T.

Night-lighting operations.

STATION 119
(special)

June 12, 1958; 0805-0910 GCT; 16°40'N, 105°07'W; 1990 fm; wind, 250°, force 4; temp., 81.4°F dry, 76.5°F wet; weather, 02; clouds, 2, amt., 6; sea, 2; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 167 m, 0838-0859 GCT, 94 ml T, 94 ml S; H at 0 m, 0840-0900 GCT, 104 ml T, 104 ml S.

STATION 120
(special)

June 12, 1958; 1146-1225 GCT; 17°03'N, 105°36'W; 1600 fm; wind, 260°, force 3; temp., 80.3°F dry, 76.2°F wet; weather, 02; clouds 6, amt., 2; sea, 2; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 134 m, 1154-1210 GCT, 108 ml T, 105 ml S; H at 0 m, 1156-1212 GCT, 103 ml T, 103 ml S.

STATION 121
(special)

June 12, 1958; 1500-1550 GCT; 17°27'N, 105°22'W; 1460 fm; wind, 280°, force 2; temp., 81.6°F dry, 75.6°F wet; weather, 02; clouds, 8, amt., 4; sea, 2; swell, 270°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 97 m, 1527-1543 GCT, 90 ml T, 90 ml S; H at 0 m, 1530-1547 GCT; 21 ml T, 21 ml S.

STATION 122
(regular forenoon)

June 12, 1958; 2149 GCT; 17°51'N, 105°08.5'W; 1600 fm; wind, 240°, force 2; temp., 83.0°F dry, 76.3°F wet; weather, partly cloudy; sea, very rough; wire angle, 33°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.62	34.52	3.92	0.30	0	28.62	34.52	3.92	21.85	597	0.00
8	28.11	34.52	3.96	0.34	10	28.10	34.52	3.95	22.03	580	0.06
17	28.08	34.52	3.82	0.31	20	28.05	34.52	3.85	22.04	579	0.12
38	27.92	34.54	3.92	0.32	30	27.98	34.53	3.89	22.06	577	0.17
54	24.27	34.61	3.95	0.55	50	25.92	34.59	3.95	22.77	509	0.28
69	20.75	34.66	1.79	1.60	75	19.46	34.64	1.26	24.64	331	0.39
84	17.59	34.63	0.33	2.37	100	15.11	34.71	0.23	25.74	226	0.46
111	14.66	34.75	0.03	2.56a)	150	12.73	34.84	0.08	26.34	169	0.56
131	13.55	34.78	0.07	2.74	200	11.98	34.80	0.11	26.46	158	0.64
161	12.56	34.85	0.09	2.64	250	11.40	34.77	0.10	26.54	151	0.72
209	11.82	34.79	0.13	2.78	300	10.90	34.75	0.09	26.62	143	0.80
292	11.02	34.75	0.09	2.76a)	400	9.39	34.67	0.10	26.82	124	0.94
399	9.40	34.67	0.10	3.06a)	500	7.98	34.61	0.12	27.00	107	1.07
511	7.80	34.60	0.13	3.20	600	6.92	34.59	0.14	27.12	95	1.18
673	6.24	34.58	0.16	3.36a)	700	6.07	34.58	0.16	27.24	84	1.28
934	4.90	34.59	0.17	3.51a)	800	5.51	34.59	0.17	27.31	77	1.37
					1000	(4.64)	(34.59)		(27.41)	(67)	(1.53)

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
10-19	0.0360
19-37	0.0420
37-54	0.0386
54-57	0.189
57-64	0.0990
64-77	0.0449

Incident solar radiation: daily T 635 gm-cal/cm^2, day L 13.65 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.12; 5, 0.13; 10, 0.15; 25, 0.13; 50, 0.33; 100, 0.17.

Water column chlorophyll a: 23 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 275 m, 1949-2022 GCT, 108 ml T, 107 ml S; H at 0 m, 1954-2024 GCT, 24 ml T, 24 ml S.

a) Duplicate values: 111 m, 2.64; 292 m, 2.84; 399 m, 2.99; 673 m, 3.27; 934 m, 3.39 μg at/L.

STATION 123
(special)

June 13, 1958; 0118-0203 GCT; 18°18'N, 104°45'W; 2250 fm; wind, 260°, force 2; temp., 80.3°F dry, 75.3°F wet; weather, 02; clouds, 6, amt., 2; sea, 1; swell, 260°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 136 m, 0141-0156 GCT, 133 ml T, 133 ml S; H at 0 m, 0147-0201 GCT, 71 ml T, 71 ml S.

STATION 124
(special)

June 13, 1958; 0450-0640 GCT; 18°44'N, 104°21'W; 920 fm; wind, 260°, force 2; temp., 84.0°F dry, 75.8°F wet; weather, 02; clouds, 6, amt., 2; sea, 1; swell, 260°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 119 m, 0521-0535 GCT, 153 ml T, 149 ml S; H at 0 m, 0521-0536 GCT, 547 ml T, 258 ml S.

Night-lighting operations.

STATION 125
(special)

June 13, 1958; 0900-1106 GCT; 19°03'N, 104°45'W; 750 fm; wind, 270°, force 3; temp., 82.4°F dry, 74.5°F wet; weather, 02; clouds, missing; sea, 1; swell, 270°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 144 m, 0932-0947 GCT, 277 ml T, 277 ml S; H at 0 m, 0934-0949 GCT, 151 ml T, 151 ml S.

Night-lighting operations.

STATION 126
(special)

June 13, 1958; 1348-1500 GCT; 19°20'N, 105°10'W; 840 fm; wind, 270°, force 1; temp., 81.8°F dry, 74.8°F wet; weather, 02; clouds, 8, amt., 2; sea, 1; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 133 m, 1350-1405 GCT, 142 ml T, 142 ml S; H at 0 m, 1400-1418 GCT, 108 ml T, 108 ml S.

STATION 127
(regular forenoon)

June 13, 1958; 1801 GCT; 19°01'N, 105°34.5'W; 2580 fm; wind, direction missing, force 1; temp., 82.3°F dry, 75.9°F wet; weather, partly cloudy; sea, moderate; wire angle, 07°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T} 10^{-5} cm^3/g	ΔD dyn m
0	28.36	34.52	4.28	0.30	0	28.36	34.52	4.28	21.94	588	0.00
10	28.08	34.53	4.25	0.32	10	28.08	34.53	4.25	22.04	579	0.06
20	28.07	34.52	4.27	0.30	20	28.07	34.52	4.27	22.04	579	0.12
45	23.83	34.56	4.53	0.46	30	27.40	34.53	4.33	22.25	559	0.17
64	20.94	34.58	3.37	1.04	50	23.32	34.56	4.48	23.52	437	0.27
83	17.77	34.50	1.15	2.14	75	18.48	34.52	1.67	24.81	315	0.37
102	15.28	34.58	0.39	2.46	100	15.52	34.57	0.45	25.55	244	0.44
139	13.68	34.70	0.05	2.66	150	13.06	34.75	0.06	26.20	182	0.54
166	12.75	34.78	0.06	2.72a)	200	12.13	34.79	0.07	26.42	162	0.63
207	12.00	34.78	0.07	2.79a)	250	11.34	34.75	0.07	26.54	151	0.71
270	11.06	34.73	0.07	2.93	300	10.63	34.70	0.06	26.63	142	0.79
380	9.44	34.61	0.05	3.09	400	9.18	34.60	0.05	26.79	126	0.93
513	7.64	34.53	0.08	3.17	500	7.86	34.54	0.07	26.96	111	1.06
648	6.22	34.49	0.07	3.28	600	6.72	34.50	0.07	27.09	98	1.17
838	5.12	34.50	0.11	3.40a)	700	5.84	34.49	0.08	27.19	89	1.28
1130	3.94	34.56	0.45	3.31	800	5.30	34.50	0.10	27.26	82	1.37
					1000	4.42	34.54	0.30	27.40	69	1.54

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
5-10	0.0293
10-20	0.0170
20-40	0.0349
40-60	0.0738
60-80	0.0830
80-100	0.0672

Incident solar radiation: daily T 673 gm-cal/cm^2, day L 14.08 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.095; 5, 0.092; 10, 0.10; 25, 0.096; 50, 0.34; 100, 0.18.

Water column chlorophyll a: 22 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 310 m, 1914-1947 GCT, 36 ml T, 33 ml S; H at 0 m, 1911-1951 GCT, 31 ml T, 31 ml S.

a) Duplicate values: 166 m, 2.80; 207 m, 2.72; 838 m, 3.33 µg at/L.

STATION 128
(special)

June 13-14, 1958; 2335-0015 GCT; 18°41.5'N, 106°00'W; 1890 fm; wind, 270°, force 2; temp., 84.8°F dry, 77.0°F wet; weather, 02; clouds, 6, amt., 3; sea, 1; swell, 270°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 124 m, 2344-2359 GCT, 114 ml T, 114 ml S; H at 0 m, 2345-2400 GCT, 33 ml T, 33 ml S.

STATION 129
(special)

June 14, 1958; 0256-0422 GCT; 18°28'N, 106°28'W; 1920 fm; wind, 240°, force 2; temp., 81.8°F dry, 76.6°F wet; weather, 02; clouds, missing; sea, 1; swell, 240°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 141 m, 0324-0342 GCT, 179 ml T, 179 ml S; H at 0 m, 0324-0343 GCT, 96 ml T, 96 ml S.

Night-lighting operations.

STATION 130
(special)

June 14, 1958; 0658-0830 GCT; 18°11'N, 106°55'W; 2180 fm; wind, 230°, force 2; temp., 80.0°F dry, 75.5°F wet; weather, 02; clouds, type missing, amt., 3; sea, 1; swell, 230°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 131 m, 0712-0727 GCT, 142 ml T, 142 ml S; H at 0 m, 0714-0730 GCT, 205 ml T, 205 ml S.

Night-lighting operations.

STATION 131
(special)

June 14, 1958; 1045-1218 GCT; 18°38'N, 107°12.5'W; 2080 fm; wind, 240°, force 2; temp., 78.5°F dry, 75.2°F wet; weather, 50; clouds, 7, amt., 6; sea, 1; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 147 m, 1156-1211 GCT, 139 ml T, 133 ml S; H at 0 m, 1158-1213 GCT, 225 ml T, 225 ml S.

Night-lighting operations.

STATION 132
(special)

June 14, 1958; 1517-1545 GCT; 19°07'N, 107°26'W; 1545 fm; wind, 260°, force 3; temp., 80.8°F dry, 76.0°F wet; weather, 01; clouds, 8, amt., 2; sea, 1; swell, 270°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 118 m, 1522-1537 GCT, 73 ml T, 73 ml S; H at 0 m, 1525-1540 GCT, 158 ml T, 158 ml S.

STATION 133
(regular forenoon)

June 14, 1958; 2122 GCT; 19°37'N, 107°37'W; 1440 fm; wind, 140°, force 3; temp., 84.1°F dry, 76.0°F wet; weather, partly cloudy; sea, rough; wire angle, 17°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	27.88	34.67	4.39	0.32a)	0	27.88	34.67	4.39	22.20	564	0.00
10	27.82	34.68	4.43	0.32	10	27.82	34.68	4.43	22.24	560	0.06
19	27.66	34.67	4.37	0.28	20	27.64	34.67	4.37	22.29	555	0.11
43	24.79	34.63	4.80	0.36	30	27.48	34.66	4.38	22.34	551	0.17
62	22.29	34.62	4.91	0.45	50	23.66	34.63	4.95	23.48	442	0.27
81	19.98	34.59	3.01	1.16	75	20.65	34.60	3.54	24.30	363	0.37
100	16.98	34.54	1.48	2.14	100	16.98	34.54	1.48	25.18	279	0.45
136	14.10	34.61	0.48	2.51a)	150	13.67	34.67	0.39	26.02	199	0.57
162	13.22	34.79	0.31	2.78	200	12.04	34.76	0.08	26.42	162	0.66
199	12.05	34.76	0.08	2.83a)	250	11.44	34.74	0.17	26.51	153	0.74
260	11.33	34.74	0.19	3.08a)	300	10.90	34.70	0.16	26.58	146	0.82
365	10.02	34.61	0.08	3.03	400	9.48	34.58	0.08	26.73	133	0.97
494	7.80	34.52	0.10	3.18a)	500	7.74	34.52	0.09	26.96	110	1.10
628	6.48	34.49	0.07	3.33a)	600	6.72	34.50	0.07	27.08	99	1.21
816	5.20	34.47	0.12	3.31a)	700	5.94	34.48	0.08	27.17	90	1.31
1108	3.98	34.52	0.42	3.32a)	800	5.29	34.47	0.11	27.24	84	1.41
					1000	4.41	34.49	0.31	27.36	72	1.58

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
5-10	0.0616
10-20	0.0225
20-40	0.0207
40-59	0.0532
59-77	0.0679
77-87	0.113
87-100	0.0249

Incident solar radiation: daily T 664 gm-cal/cm^2, day L 13.97 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.13; 5, 0.10; 10, 0.098; 25, 0.11; 50, 0.20; 100, 0.31.

Water column chlorophyll a: 20 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 297 m, 1913-1946 GCT, 108 ml T, 87 ml S; H at 0 m, 1920-1950 GCT, 20 ml T, 20 ml S.

a) Duplicate values: 0 m, 0.25; 136 m, 2.66; 199 m, 2.14; 260 m, 3.01; 494 m, 3.04; 628 m, 3.25; 816 m, 3.38; 1108 m, 3.25 μg at/L.

STATION 134
(special)

June 15, 1958; 0026-0115 GCT; 20°02'N, 107°41'W; 1600 fm; wind, 250°, force 3; temp., 81.0°F dry, 75.8°F wet; weather, 02; clouds, 8, amt., 2; sea, 2; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 146 m, 0055-0110 GCT, 64 ml T, 64 ml S; H at 0 m, 0058-0114 GCT, 55 ml T, 55 ml S.

STATION 135
(special)

June 15, 1958; 0330-0600 GCT, 20°15'N, 107°14'W; 2220 fm; wind, 260°, force 1; temp., 81.0°F dry, 75.0°F wet; weather, 02; clouds, missing; sea, 1; swell, 260°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 126 m, 0340-0356 GCT, 164 ml T, 121 ml S; H at 0 m, 0342-0357 GCT, 154 ml T, 154 ml S.

Nekton: o to 72 m, 0404-0509 GCT, 287 ml T.

Night-lighting operations.

STATION 136
(special)

June 15, 1958; 0745-0910 GCT; 20°26'N, 106°47'W; 1800 fm; wind, 250°, force 1; temp., 81.2°F dry, 76.0°F wet; weather, 50; clouds, missing; sea, 1; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 126 m, 0815-0827 GCT, 208 ml T, 197 ml S; H at 0 m, 0813-0828 GCT, 242 ml T, 242 ml S.

Night-lighting operations.

STATION 137
(special)

June 15, 1958; 1133-1225 GCT; 20°37'N, 106°20'W; 1950 fm; wind, 210°, force 1; temp., 81.5°F dry, 75.0°F wet; weather, 01; clouds, 8, amt., 3; sea, 1; swell, 230°, missing; time zone 7.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.12; 5, 0.11; 10, 0.13; 25, 0.13; 50, 0.65; 100, 0.14.

Water column chlorophyll a: 34 mg/m^2.

Zooplankton: N-C N, o to 142 m, 1155-1210 GCT, 170 ml T, 167 ml S; H at 0 m, 1158-1213 GCT, 87 ml T, 87 ml S.

Night-lighting operations.

STATION 138
(special)

June 15, 1958; 1430-1554 GCT; 20°50'N, 105°59'W; 410 fm; wind, 230°, force 2; temp., 82.8°F dry, 76.0°F wet; weather, 03; clouds, 8, amt., 5; sea, 1; swell, 230°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 117 m, 1455-1510 GCT, 134 ml T, 134 ml S; H at 0 m, 1457-1512 GCT, 70 ml T, 70 ml S.

STATION 139
(regular forenoon)

June 15, 1958; 1808 GCT; 21°05'N, 106°16'W; 1750 fm; wind, 240°, force 2; temp., 83.1°F dry, 77.6°F wet; weather, cloudy; sea, moderate; wire angle, 10°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	28.72	34.95	4.44	0.30	0	28.72	34.95	4.44	22.14	569	0.00
10	28.63	34.94	4.45	0.31	10	28.63	34.94	4.45	22.16	567	0.06
20	28.52	34.93	4.45	0.30	20	28.52	34.93	4.45	22.20	564	0.11
44	23.48	34.64	4.40	0.58	30	26.20	34.76	4.57	22.81	506	0.17
64	19.27	34.62	1.10	1.98	50	23.00	34.67	4.01	23.71	420	0.26
83	17.43	34.65	0.36	2.34	75	18.08	34.64	0.54	25.00	297	0.35
103	15.90	34.69	0.19	2.47	100	16.12	34.68	0.20	25.49	250	0.42
140	14.30	34.76	0.07	2.58	150	14.24	34.79	0.05	26.00	202	0.53
166	13.33	34.78	0.06	2.66	200	12.69	34.81	0.06	26.32	171	0.63
206	12.60	34.81	0.06	2.70a)	250	11.96	34.79	0.06	26.46	158	0.71
268	11.68	34.78	0.08	2.88a)	300	11.25	34.75	0.07	26.56	149	0.79
375	10.29	34.69	0.08	2.83a)	400	9.82	34.66	0.07	26.74	132	0.94
506	7.56	34.52	0.05	3.72a)	500	7.63	34.53	0.07	26.98	109	1.07
639	6.24	34.49	0.08	3.36a)	600	6.56	34.49	0.07	27.10	97	1.18
827	5.14	34.50	0.14	3.32a)	700	5.82	34.49	0.08	27.19	89	1.28
1118	3.94	34.54	0.44	3.28	800	5.28	34.50	0.10	27.27	81	1.38
					1000	4.40	34.52	0.31	27.39	70	1.55

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
5-10	0.0309
10-19	0.0268
19-38	0.0322
38-49	0.161
49-66	0.0486
66-77	0.0489

Incident solar radiation: daily T 590 gm-cal/cm^2, day L 14.32 hr.

a) Duplicate values: 206 m, 2.60; 268 m, 2.43; 375 m, 3.00; 506 m, 3.08; 639 m, 3.17; 827 m, 3.40 µg at/L.

Biological Data

Zooplankton: N-C N, o to 301 m, 1913-1946 GCT, 44 ml T, 44 ml S; H at 0 m, 1919-1949 GCT, 25 ml T, 25 ml S.

Phytoplankton haul taken.

STATION 140
(special)

June 15, 1958; 2310-2355 GCT; 21°22'N, 106°36'W; 1690 fm; wind, 230°, force 1; temp., 83.2°F dry, 76.1°F wet; weather, 02; clouds, 8, amt., 5; sea, 1; swell, 250°, missing; time zone 7.

Biological Data

Zooplankton: N-C N, o to 134 m, 2335-2350 GCT, 38 ml T, 38 ml S; H at 0 m, 2337-2352 GCT, 85 ml T, 85 ml S.

STATION 141
(special)

June 16, 1958; 0123-0416 GCT; 21°37'N, 106°31.5'W; time zone 7.

Biological Data

Night-lighting operations.

STATION 142
(special)

June 16, 1958; 0632-0832 GCT; 21°36'N, 106°44'W, 240 fm; wind, 260°, force 2; temp., 82.4°F dry, 75.0°F wet; weather, 02; clouds, missing; sea, 1; swell, 260°, missing; time zone 7.

Biological Data

Nekton: o, depth missing, 0717-0821 GCT, 469 ml T.

Night-lighting operations.

STATION 143
(regular forenoon)

June 16, 1958; 1803 GCT; 22°18'N, 108°32'W; 2000 fm; wind, 260°, force 3; temp., 82.0°F dry, 76.8°F wet; weather, partly cloudy; sea, moderate; wire angle, 16°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	27.64	35.04	4.42	0.40	0	27.64	35.04	4.42	22.56	529	0.00
10	27.58	35.03	4.44	0.42	10	27.58	35.03	4.44	22.58	528	0.05
19	27.56	35.04	4.41	0.41	20	27.56	35.04	4.41	22.60	525	0.10
43	23.34	34.78	5.02	0.50	30	24.42	34.82	5.03	23.40	448	0.15
62	20.28	34.79	3.35	1.30	50	20.81	34.73	3.87	24.36	357	0.23
81	16.96	34.69	0.37	2.48	75	17.19	34.69	0.60	25.25	273	0.32
100	15.27	34.68	0.10	2.54a)	100	15.27	34.68	0.10	25.68	232	0.38
135	13.42	34.76	0.07	2.67	150	12.97	34.79	0.07	26.25	178	0.48
162	12.59	34.79	0.08	2.75	200	11.80	34.75	0.07	26.46	158	0.57
200	11.80	34.75	0.07	2.77	250	11.12	34.72	0.07	26.55	149	0.65
260	11.00	34.71	0.07	2.87a)	300	10.48	34.67	0.07	26.63	142	0.72
364	9.60	34.60	0.08	3.09a)	400	9.08	34.57	0.08	26.79	127	0.86
492	7.76	34.52	0.08	3.22	500	7.68	34.52	0.08	26.97	110	0.99
621	6.37	34.53	0.12	3.24	600	6.55	34.52	0.11	27.12	95	1.10
801	5.24	34.50	0.16	3.35a)	700	5.84	34.52	0.14	27.22	86	1.20
1081	4.17	34.54	0.31	3.48a)	800	5.25	34.50	0.16	27.27	81	1.29
					1000	4.44	34.53	0.27	27.39	70	1.46

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
5-10	0.0286
10-19	0.0310
19-37	0.0461
37-55	0.0849
55-74	0.0680

Incident solar radiation: daily T 693 gm-cal/cm^2, day L 14.48 hr.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 0.15; 5, 0.15; 10, 0.13; 25, 0.13; 50, 0.36; 100, 0.12.

Water column chlorophyll a: 22.1 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 292 m, 1859-1932 GCT, 31 ml T, 28 ml S; H at 0 m, 1909-1939 GCT, 37 ml T, 37 ml S.

a) Duplicate values: 100 m, 2.63; 260 m, 2.97; 364 m, 2.97; 801 m, 3.46; 1081 m, 3.37 µg at/L.

STATION 144
(special)

June 17, 1958; 0700-1010 GCT; 23°00'N, 110°15'W; 320 fm; wind, 320°, force 3; temp., 74.0°F dry, 68.0°F wet; weather, 02; clouds, missing; sea, 3; swell, 320°, missing; time zone 7.

Biological Data

Nekton: o, depth missing, 0710-0815 GCT, 345 ml T. (On Golden Gate Bank)
o, depth missing, 0822-0927 GCT, 1814 ml T. (North of Golden Gate Bank)

Night-lighting operations.

STATION 145
(regular forenoon)

June 17, 1958; 1750 GCT; 23°52'N, 111°30'W; 150 fm; wind, 320°, force 2; temp., 72.8°F dry, 66.0°F wet; weather, partly cloudy; sea, moderate; wire angle, 03°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P μg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	22.31	34.38	5.10	0.45	0	22.31	34.38	5.10	23.68	422	0.00
10	22.16	34.36	5.09	0.48	10	22.16	34.36	5.09	23.71	420	0.04
30	18.52	34.25	4.97	0.76	20	19.66	34.20	5.24	24.26	367	0.08
50	15.86	34.20	2.85	1.54	30	18.52	34.25	4.97	24.59	336	0.12
74	14.18	34.17	1.97	1.92	50	15.86	34.20	2.85	25.18	279	0.18
98	13.66	34.34	1.28	2.28a)	75	14.14	34.18	1.86	25.54	245	0.24
120	13.35	34.61	0.57	2.65	100	13.65	34.36	1.27	25.79	222	0.30
157	12.47	34.60	0.40	2.84a)	150	12.66	34.60	0.43	26.18	185	0.40
193	11.88	34.63	0.23	2.77a)	200	11.80	34.63	0.21	26.36	167	0.50
238	11.22	34.63	0.20	2.86							

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
5-10	0.0308
10-20	0.0600
20-40	0.0863
40-60	0.0941
60-80	0.0499

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 1.1; 5, 1.1; 10, 1.8; 25, 0.63; 50, 0.26; 100, 0.12.

Water column chlorophyll a: 50 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 118 m, 1846-1902 GCT, 155 ml T, 155 ml S; H at 0 m, 1848-1903 GCT, 15 ml T, 15 ml S.

a) Duplicate values: 98 m, 2.36; 157 m, 2.94; 193 m, 2.93 μg at/L.

STATION 146
(special)

June 18, 1958; 0700-0846 GCT; 25°23'N, 112°57.5'W; 150 fm; wind, 290°, force 3; temp., 68.9°F dry, 65.7°F wet; weather, 02; clouds, missing; sea, 1; swell, 290°, missing; time zone 7.

Biological Data

Nekton: o, depth missing, 0707-0810 GCT, 1932 ml T.

STATION 147
(regular forenoon)

June 18, 1958; 1750 GCT; 26°38'N, 114°10'W; 1150 fm; wind, 310°, force 2; temp., 65.0°F dry, 62.8°F wet; weather, cloudy; sea, slight; wire angle, 00°; time zone 7.

OBSERVED					INTERPOLATED				COMPUTED		
Depth (m)	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	Depth (m)	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_T 10^{-5} cm^3/g	ΔD dyn m
0	16.76	33.86	5.96	0.78	0	16.76	33.86	5.96	24.72	324	0.00
10	15.55	33.74	5.39	0.84	10	15.55	33.74	5.39	24.90	306	0.03
20	14.14	33.69	4.58	1.00	20	14.14	33.69	4.58	25.17	281	0.06
45	12.14	33.82	3.01	1.62	30	13.20	33.75	3.85	25.40	258	0.09
65	12.16	33.97	2.41	1.86	50	12.12	33.88	2.85	25.71	229	0.14
84	12.32	34.21	1.44	2.18	75	12.34	34.16	1.50	25.88	212	0.19
103	11.61	34.29	1.21	2.26a)	100	11.77	34.27	1.25	26.09	193	0.24
142	11.77	34.46	0.63	2.56	150	11.76	34.50	0.62	26.27	176	0.34
170	11.65	34.51	0.48	2.72	200	11.52	34.54	0.34	26.34	169	0.43
211	11.44	34.56	0.30	2.72	250	10.88	34.54	0.28	26.46	158	0.51
274	10.49	34.52	0.29	2.80	300	10.08	34.50	0.30	26.57	148	0.59
384	8.90	34.45	0.29	3.05	400	8.69	34.44	0.28	26.75	130	0.74
519	6.90	34.34	0.26	3.20a)	500	7.07	34.35	0.27	26.90	116	0.87
655	5.99	34.37	0.20	3.78	600	6.37	34.36	0.22	27.02	104	0.99
845	4.78	34.42	0.31	3.45a)	700	5.69	34.38	0.22	27.12	95	1.09
1136	3.74	34.49	0.63	3.40	800	5.05	34.41	0.28	27.22	86	1.19
					1000	4.14	34.47	0.51	27.36	72	1.37

Submarine Daylight:

Depth Interval (m)	Attenuation Coefficient (K)
5-10	0.0933
10-19	0.112
19-34	0.0897
34-47	0.0754

a) Duplicate values: 103 m, 2.44; 519 m, 3.00; 845 m, 3.13 µg at/L.

Biological Data

Phytoplankton: depth (m) of chlorophyll a (mg/m^3), 1, 1.9; 5, 2.0; 10, 0.95; 25, 0.56; 50, 0.32; 100, 0.12.

Water column chlorophyll a: 480 mg/m^2.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 294 m, 1855-1929 GCT, 56 ml T, 56 ml S; H at 0 m, 1901-1933 GCT, 17 ml T, 12 ml S.

STATION 148
(special)

June 19, 1958; 0700-0819 GCT; 27°58'N, 115°27'W; 58 fm; wind, 320°, force 4; temp., 63.1°F dry, 61.8°F wet; weather, 02; clouds, missing; sea, 3; swell, 320°, missing; time zone 7.

Biological Data

Nekton: H at 20 m, 0710-0810 GCT, 13,000 ml T.

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS

(Non-hyphenated slide numbers refer to station positions. Hyphenated numbers refer to observations between stations.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
0-1	IV-25	0000	28°21.5'	118°24.0'	17.6	C	90	-
0-2	"	0200	28°00.0'	118°29.0'	18.3	M	32	-
0-3	"	0500	27°26.0'	118°38.0'	17.6	M	33	-
1	"	0800	26°52.5'	118°47.0'	18.2	M	26	33.91
1-1	"	1130	26°48.0'	118°47.0'	18.5	M	32	34.02
1-2	"	1405	26°15.0'	118°57.0'	18.4	N	0	33.92
1-3	"	1715	25°35.5'	119°07.0'	19.1	M	30	34.14
2	"	1750	25°26.0'	119°09.5'	19.1	C	67	-
2-1	"	2320	25°16.0'	119°11.0'	19.2	N	0	34.08
2-2	IV-26	0205	24°40.5'	119°17.0'	19.3	N	0	34.22
2-3	"	0500	24°07.0'	119°24.5'	18.9	M	40	34.31
3	"	0800	23°36.5'	119°33.0'	19.8	M	60	34.42
3-1	"	1100	23°25.0'	119°35.0'	20.1	M	55	34.41
4	"	1400	23°10.0'	119°42.0'	21.6	M	55	-
4-1	IV-27	0200	22°47.0'	119°16.0'	20.3	M	55	34.46
4-2	"	0500	22°23.0'	118°49.0'	20.8	M	37	34.52
5	"	0925	21°59.0'	118°21.0'	20.7	M	60	34.57
5-1	"	1400	21°48.0'	117°55.0'	20.8	M	40	34.56
5-2	"	1700	21°21.0'	117°30.0'	21.1	M	58	34.54
6	"	1800	21°13.0'	117°23.0'	21.2	M	40	-
6-1	IV-28	0022	20°46.0'	116°57.0'	21.7	M	37	34.60
6-2	"	0200	20°31.0'	116°42.0'	22.0	M	29	34.52
6-3	"	0500	20°04.0'	116°17.0'	21.9	M	30	34.63
7	"	0810	19°37.0'	115°53.0'	23.1	M	34	34.59
7-1	"	1400	19°18.0'	115°28.0'	24.0	M	30	34.30
7-2	"	1630	19°01.0'	115°12.0'	23.9	M	20	34.34
8	"	1815	18°41.0'	114°53.0'	24.2	N	0	-
8-1	"	2300	18°35.5'	114°51.0'	23.9	M	18	34.47
10-1	IV-29	0841	18°15.0'	114°36.0'	24.2	M	18	34.34
12-1	"	1730	18°13.5'	114°34.5'	24.2	M	19	34.33
13	"	2025	18°08.5'	114°32.0'	24.2	M	20	-
13-1	"	2300	18°00.0'	114°25.0'	24.4	C	31	34.33
13-2	IV-30	0200	17°28.0'	114°01.5'	25.5	M	38	34.07
13-3	"	0500	16°59.0'	113°40.0'	25.2	M	50	34.08
14	"	0910	16°33.0'	113°19.5'	25.5	M	36	34.04
14-1	"	1100	16°38.0'	113°16.0'	25.5	M	39	34.05
14-2	"	1400	16°09.0'	112°54.0'	26.4	M	26	33.91
14-3	"	1700	15°37.5'	112°30.0'	26.7	C	90	-
15	"	1818	15°28.5'	112°23.0'	27.1	M	20	-
15-1	"	2300	15°19.0'	112°18.0'	27.4	M	29	33.95
15-2	V-1	0200	14°51.5'	112°01.0'	28.4	N	0	34.10
15-3	"	0500	14°25.5'	111°44.0'	28.3	M	44	34.10

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
16	V-1	0810	13°58.0'	111°26.0'	26.7	M	70	34.05
16-1	"	1300	13°46.0'	111°12.5'	28.6	M	60	34.13
16-2	"	1600	13°15.5'	110°52.0'	28.5	M	49	33.84
17	"	1720	13°03.0'	110°44.0'	28.8	C	65	-
17-1	"	2200	12°45.0'	110°37.0'	28.6	C	60	33.87
17-2	V-2	0100	12°15.0'	110°21.0'	28.8	C	80	33.80
17-3	"	0400	11°44.5'	110°05.0'	28.5	M	73	33.91
18	"	0700	11°14.0'	109°48.0'	28.7	M	22	33.95
18-1	"	1000	11°10.0'	109°41.0'	28.4	C	74	33.92
18-2	"	1300	10°40.0'	109°24.0'	28.6	M	65	33.77
19-1	"	2200	10°09.0'	109°21.0'	29.6	N	0	33.51
20-1	V-3	0100	10°20.0'	109°29.0'	29.2	N	0	33.81
21	"	0500	10°17.0'	109°14.0'	29.6	N	0	33.49
22	"	0730	10°19.0'	109°32.0'	29.0	C	65	-
23	"	1315	10°14.0'	109°13.5'	29.6	M	27	-
25	V-4	0110	10°16.0'	109°12.5'	29.7	M	38	-
27-1	"	0700	10°19.0'	108°47.0'	29.5	M	56	33.66
27-2	"	1020	10°21.0'	108°13.0'	29.6	M	45	33.53
27-3	"	1300	10°22.0'	107°47.0'	29.4	M	60	33.78
27-4	"	1500	10°22.0'	107°14.0'	29.4	M	20	33.65
28	"	1715	10°22.0'	106°56.0'	29.5	C	55	-
28-1	"	2200	10°23.0'	106°41.0'	29.8	M	35	34.20
28-2	V-5	0100	10°23.0'	106°15.0'	29.8	M	43	33.93
28-3	"	0400	10°20.5'	105°47.0'	29.7	M	31	34.06
29	"	0700	10°17.5'	105°18.0'	29.6	M	20	33.86
29-1	"	1000	10°22.0'	105°10.5'	29.6	M	35	33.85
29-2	"	1300	10°19.0'	104°40.0'	29.5	M	35	33.85
29-3	"	1600	10°16.0'	104°08.0'	29.4	M	20	34.13
30	"	1715	10°14.0'	103°53.0'	29.8	M	28	-
30-1	"	2200	10°14.5'	103°44.0'	30.5	M	31	34.11
30-2	V-6	0100	10°12.0'	103°14.0'	30.1	M	41	34.01
30-3	"	0400	10°11.0'	102°44.0'	29.7	M	40	33.40
31	"	0700	10°11.0'	102°12.0'	29.7	M	36	33.60
31-1	"	1000	10°17.0'	102°03.0'	29.6	N	0	33.51
31-2	"	1300	10°16.0'	101°28.0'	29.6	N	0	33.51
31-3	"	1600	10°10.0'	100°55.0'	29.6	M	26	33.63
32	"	1715	10°07.5'	100°40.5'	29.6	M	50	-
32-1	"	2200	10°07.0'	100°18.0'	30.1	M	31	33.58
32-2	V-7	0100	10°02.5'	99°44.5'	30.2	M	35	33.80
32-3	"	0400	9°58.0'	99°12.5'	30.1	M	38	-

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
33	V-7	0700	9°54.0'	98°40.0'	30.0	M	26	34.01
33-1	"	1000	9°55.0'	98°33.0'	30.1	C	26	34.23
33-2	"	1300	9°50.5'	98°01.0'	30.0	M	30	34.43
33-3	"	1600	9°46.0'	97°28.5'	29.7	M	24	33.99
34	"	1720	9°44.0'	97°14.0'	30.0	M	20	-
34-1	"	2300	9°46.0'	96°47.0'	29.8	M	19	34.11
34-2	V-8	0100	9°45.0'	96°26.5'	30.4	C	23	34.08
34-3	"	0300	9°45.0'	96°06.0'	30.3	M	19	34.13
35-1	"	1035	9°34.5'	96°07.5'	30.1	C	20	33.96
35-2	"	1200	9°23.5'	96°07.5'	30.1	C	28	33.86
35-3	"	1245	9°15.0'	96°07.0'	30.0	M	20	33.86
35-4	"	1400	9°03.0'	96°07.0'	29.9	M	20	33.86
35-5	"	1535	8°48.0'	96°06.5'	30.0	M	28	33.96
35-6	"	1655	8°34.5'	96°06.0'	30.5	M	27	33.99
35-7	"	1730	8°28.0'	96°06.0'	30.6	M	27	-
35-8	"	1830	8°24.0'	96°06.0'	31.1?	M	22	33.96
35-9	"	1950	8°06.0'	96°04.5'	31.3?	M	22	34.00
35-10	"	2115	7°53.0'	96°02.5'	31.7?	M	22	34.03
35-11	"	2230	7°41.5'	96°01.0'	31.9?	M	19	33.93
35-12	V-9	0000	7°27.0'	95°59.5'	31.3?	M	13	-
35-13	"	0115	7°15.0'	95°57.0'	31.1	-	-	33.79
35-14	"	0230	7°04.0'	95°56.0'	30.2	N	0	33.48
35-15	"	0345	6°51.5'	95°56.0'	30.1	N	0	33.42
35-16	"	0500	6°39.5'	95°55.0'	29.0	N	0	33.01
36	"	0600	6°30.0'	95°55.0'	30.0	M	20	32.60
36-1	"	0930	6°18.5'	95°54.0'	29.8?	M	15	32.51
36-2	"	1015	6°11.0'	95°53.5'	29.6	M	20	32.38
36-3	"	1120	6°01.0'	95°53.0'	29.4	M	20	33.94
36-4	"	1240	5°46.5'	95°53.0'	29.4	P	20	-
36-5	"	1410	5°33.5'	95°53.0'	29.2	P	18	30.26
36-6	"	1535	5°17.0'	95°53.0'	29.3	P	25	31.94
37	"	1625	5°10.0'	95°53.5'	29.4	M	20	-
37-1	"	2000	5°05.0'	95°51.0'	29.4	M	29	32.16
37-2	"	2120	4°51.5'	95°51.5'	29.1	P	31	32.13
37-3	"	2240	4°39.0'	95°52.0'	29.1	P	30	32.16
37-4	V-10	0000	4°25.0'	95°52.0'	29.1	P	28	31.87
38	"	0150	4°15.0'	95°52.0'	29.1	P	28	-
39	"	0530	4°49.0'	95°54.0'	29.3	M	31	-
40	"	0905	5°24.0'	95°55.0'	29.4	P	19	-
41	"	1250	5°58.0'	95°56.0'	29.3	P	15	-
42	"	1615	6°35.5'	95°57.0'	29.7	N	0	-
42-1	"	2100	7°06.5'	95°57.0'	30.8	M	17	-
43	V-11	0000	7°43.0'	95°57.0'	30.4	C	21	-

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
44	V-11	0605	7°12.5'	95°52.5'	30.0	M	15	-
44-1	"	0735	7°04.0'	95°52.0'	29.7	M	14	33.51
44-2	"	0855	6°50.0'	95°50.0'	29.7	N	0	33.49
44-3	"	0955	6°40.0'	95°48.0'	29.3	N	0	33.28
44-4	"	1100	6°42.0'	95°34.0'	29.1	M	15	33.09
44-5	"	1200	6°43.0'	95°22.5'	29.4	N	0	32.86
44-6	"	1300	6°44.5'	95°11.0'	29.5	-	-	32.66
44-7	"	1400	6°46.0'	94°58.0'	29.8	M	16	33.24
44-8	"	1500	6°48.0'	94°46.0'	29.8	M	17	33.01
44-9	"	1600	6°50.0'	94°35.0'	29.8	N	0	33.03
45	"	1630	6°51.5'	94°29.0'	29.8	M	16	-
45-1	"	2100	6°52.5'	94°15.5'	30.2	M	17	33.09
45-2	"	2130	6°50.5'	94°10.0'	30.7	N	0	-
45-3	"	2200	6°49.0'	94°04.0'	30.1	M	15	-
45-4	"	2255	6°51.0'	93°53.0'	30.2	M	16	-
45-5	V-12	0000	6°51.0'	93°42.5'	29.9	N	0	32.68
45-6	"	0500	7°07.0'	93°15.0'	30.0	M	20	33.10
46	"	0600	7°22.0'	92°47.0'	29.9	C	31	33.24
46-1	"	1005	7°29.0'	92°32.0'	29.9	C	31	33.51
46-2	"	1200	7°38.0'	92°15.0'	29.8	C	36	33.85
46-3	"	1500	7°53.0'	91°47.5'	29.5	M	25	33.62
47	"	1630	8°01.5'	91°32.0'	29.9	M	20	-
47-1	"	2100	8°09.0'	91°27.0'	30.4	N	0	33.91
47-2	V-13	0000	8°30.0'	90°59.0'	30.6	M	21	33.87
47-3	"	0300	8°49.0'	90°39.0'	29.7	M	23	34.00
48	"	0600	9°08.0'	90°12.0'	29.4	C	20	34.25
48-1	"	1000	9°16.5'	89°59.0'	29.4	M	14	34.30
48-2	"	1200	9°29.0'	89°42.0'	29.3	M	14	34.18
49	"	1500	9°48.5'	89°14.5'	28.5	N	0	-
49-A	"	2130	9°48.5'	89°14.5'	28.5	N	0	-
49-1	V-14	0400	9°39.0'	89°14.5'	28.1	N	0	34.52
49-2	"	0500	9°32.5'	89°11.0'	28.1	N	0	34.52
49-3	"	0600	9°24.0'	89°07.0'	28.3	N	0	34.54
49-4	"	0700	9°15.5'	89°03.0'	28.3	N	0	34.60
49-5	"	0800	9°06.5'	88°58.5'	28.1	N	0	34.46
49-6	"	0900	8°56.0'	88°53.5'	28.1	N	0	34.61
49-7	"	1200	8°25.5'	88°38.0'	29.3	N	0	34.51
49-8	"	1300	8°14.5'	88°31.5'	29.3	N	0	-
49-9	"	1500	7°56.5'	88°16.0'	29.8	M	20	34.10
50	"	1630	7°42.0'	88°08.0'	29.7	M	20	-
50-1	"	2100	7°25.0'	87°52.0'	30.0	M	19	33.89
50-2	V-15	0000	6°55.0'	87°40.0'	29.7	C	28	33.08
50-3	"	0300	6°25.5'	87°28.5'	29.4	M	27	32.47

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
51	V-15	0605	5°55.5'	87°16.0'	29.0	P	26	32.06
52	"	1215	5°31.5'	87°21.5'	29.1	M	30	32.31
54	V-16	0140	5°32.5'	87°22.5'	29.0	P	10	-
56	"	1142	5°31.5'	86°43.0'	29.0	P	18	-
56-1	V-17	0000	5°30.0'	86°15.5'	28.9	P	27	31.76
56-2	"	0300	5°30.5'	85°40.5'	28.9	P	20	32.03
57-1	"	0900	5°31.0'	84°50.0'	28.8	M	19	32.90
57-2	"	1200	5°32.5'	84°16.0'	28.5	M	21	32.74
57-3	"	1500	5°33.5'	83°41.0'	28.2	M	33	31.83
58	"	1630	5°34.0'	83°26.0'	27.8	M	21	-
58-1	"	2100	5°32.5'	83°11.0'	28.8	M	19	32.57
58-2	V-18	0000	5°34.0'	82°37.0'	28.5	M	28	33.20
58-3	"	0305	5°34.5'	82°03.0'	28.9	M	20	33.08
59	"	0600	5°34.0'	81°28.5'	28.9	N	0	32.77
59-1	"	1200	5°32.0'	80°45.0'	27.8	M	19	32.74
59-2	"	1500	5°31.0'	80°11.5'	27.4	N	0	32.66
60	"	1630	5°31.0'	79°54.5'	27.0	N	0	-
60-1	"	2100	5°34.5'	79°45.0'	26.8	N	0	33.19
60-2	V-19	0000	5°38.0'	79°04.0'	27.4	N	0	33.19
60-3	"	0305	5°35.0'	78°29.0'	27.6	M	21	33.49
61	"	0600	5°29.5'	77°57.0'	27.4	M	30	33.26
62	"	0950	5°28.0'	77°46.0'	27.7	C	31	-
62-1	"	2000	5°47.0'	77°57.0'	27.8	M	29	32.57
62-2	"	2300	6°18.0'	78°16.0'	27.9	M	22	33.41
62-3	V-20	0200	6°52.0'	78°33.5'	28.0	C	29	33.39
63	"	0505	7°24.5'	78°49.0'	28.0	N	0	33.39
64	V-23	1500	8°14.0'	79°35.5'	29.2	M	24	-
65	"	1615	8°02.0'	79°38.0'	28.8	N	0	-
66	"	1700	7°48.0'	79°40.5'	30.0?	C	29	-
67	"	1845	7°35.0'	79°43.0'	30.1?	M	15	-
68	"	2000	7°22.0'	79°45.5'	29.1?	N	0	-
68-1	V-24	0200	7°00.0'	80°43.0'	27.8	-	-	-
69	"	0500	6°42.0'	81°14.0'	28.4	C	14	32.72
69-1	"	1100	6°49.0'	81°59.0'	28.6	M	20	33.01
69-2	"	1400	7°03.0'	82°26.0'	28.9	P	27	33.06
70	"	1530	7°15.0'	82°41.0'	29.1	C	23	-
70-1	"	2000	7°24.5'	82°55.0'	29.3	M	13	33.12
70-2	"	2300	7°45.0'	83°22.0'	29.3	N	0	33.26
70-3	V-25	0200	8°06.5'	83°51.0'	29.4	-	-	33.42

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
71	V-25	0500	8°28.0'	84°20.5'	29.5	N	0	33.87
71-1	"	0900	8°39.0'	84°39.5'	29.5	M	19	33.51
71-2	"	1200	9°00.0'	85°08.5'	29.4	M	14	33.82
71-3	"	1500	9°20.5'	85°38.5'	29.6	M	17	33.72
72	"	1640	9°30.0'	85°52.0'	29.3	M	21	-
72-1	"	2100	9°38.0'	86°05.5'	29.5	M	20	33.87
72-2	V-26	0000	9°56.5'	86°33.0'	29.2	M	25	33.81
72-3	"	0300	10°16.0'	87°01.5'	29.1	P	19	34.00
73	"	0600	10°35.5'	87°29.0'	28.9	N	0	34.03
73-1	"	0900	10°42.0'	87°39.0'	29.2	N	0	34.12
73-2	"	1200	11°00.0'	88°05.0'	29.1	M	19	33.80
73-3	"	1500	11°19.0'	88°33.0'	29.6	M	19	34.07
74	"	1600	11°27.0'	88°44.5'	29.7	M	13	-
74-1	V-27	0000	11°42.5'	89°09.0'	29.7	M	18	33.96
74-2	"	0300	12°03.5'	89°38.0'	29.6	M	20	33.90
75	"	0600	12°22.0'	90°06.0'	29.9	N	0	34.32
75-1	"	1200	12°47.5'	90°41.5'	30.2	C	21	-
75-2	"	1500	13°09.0'	91°12.0'	30.7	M	17	34.14
76	"	1625	13°16.0'	91°23.5'	31.1	N	0	-
76-1	"	2125	13°29.0'	91°44.0'	32.4?	M	19	33.91
76-2	V-28	0000	13°40.5'	92°00.5'	31.6	N	0	33.89
76-3	"	0300	14°00.0'	92°29.0'	31.1	N	0	-
77	"	0508	14°12.0'	92°47.0'	31.0	N	0	-
77-1	"	0915	14°10.0'	93°04.0'	30.6	N	0	34.17
77-2	"	1200	14°08.0'	93°37.0'	30.3	N	0	34.14
78	"	1320	14°14.0'	93°48.0'	30.7	-	-	-
78-1	"	1600	14°22.0'	93.50.0'	30.6	N	0	-
79	"	1850	14°37.5'	93°52.0'	30.3	M	17	-
79-1	"	2100	14°45.0'	93°52.0'	30.4	M	17	33.98
80	V-29	0015	15°13.5'	93°46.0'	30.0	C	12	-
80-1	"	0300	15°01.0'	94°01.0'	30.1	N	0	34.07
81	"	0519	14°47.0'	94°21.0'	29.4	N	0	-
81-1	"	0905	15°01.0'	94°28.0'	29.0	N	0	-
81-2	"	1200	15°28.0'	94°44.0'	28.0	N	0	-
82	"	1350	15°48.0'	94°53.0'	28.5	M	17	-
83	"	1910	15°20.0'	94°55.0'	27.9	M	21	-
83-1	"	2305	14°51.5'	94°56.0'	27.6	M	30	34.12
84	V-30	0045	14°40.5'	94°56.0'	27.9	N	0	-
84-1	"	0300	14°24.0'	94°58.5'	29.3	M	19	-

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Salinity Salinity (‰)
85	V-30	0405	14°12.0'	94°59.5'	29.5	M	15	-
85-1	"	1200	14°10.0'	95°29.0'	29.3	M	25	34.06
86	"	1440	14°13.5'	95°51.0'	29.0	M	33	-
86-1	"	2000	13°57.0'	96°02.0'	31.0?	M	27	-
87	"	2100	13°46.5'	96°08.0'	31.0	M	17	-
87-1	V-31	0600	14°22.0'	96°31.0'	30.1	N	0	-
87-2	"	0900	14°54.0'	96°47.5'	29.8	M	23	34.06
88	"	1150	15°11.0'	96°55.0'	29.8	M	23	-
88-1	"	2100	15°11.0'	96°18.0'	30.6	M	13	-
89	"	2206	15°12.0'	96°03.5'	30.7	N	0	-
90	VI-1	0305	15°15.0'	95°22.5'	30.4	N	0	-
91	"	0840	14°40.5'	95°20.0'	30.2	C	20	-
91-1	"	1200	14°37.0'	95°35.0'	30.1	N	0	-
92	"	1445	14°40.0'	96°08.0'	30.1	N	0	-
92-1	"	1800	14°24.0'	96°17.0'	30.1	N	0	-
93	"	2025	14°17.5'	96°21.5'	30.6	C	13	-
94	"	2350	13°56.5'	96°49.0'	30.1	M	23	-
94-1	VI-2	0600	14°11.0'	97°12.5'	30.0	N	0	-
94-2	"	0900	14°37.0'	97°39.5'	30.1	N	0	-
94-3	"	1200	15°02.5'	98°06.0'	29.9	N	0	34.38
94-4	"	1500	15°24.0'	98°30.0'	30.5	M	24	34.13
95	"	1625	15°36.0'	98°43.0'	30.0	C	33	-
95-1	"	2100	15°38.0'	98°46.0'	30.0	C	28	34.30
95-2	VI-3	0010	16°03.0'	99°13.0'	29.7	N	0	34.40
95-3	"	0300	16°24.0'	99°35.0'	29.3	N	0	34.36
96	"	0410	16°34.0'	99°46.0'	28.8	N	0	34.34
99	VI-6	0830	16°25.0'	100°20.0'	30.1	M	29	-
100	"	1245	16°04.0'	100°44.0'	30.1	C	24	-
101	"	2232	15°35.0'	100°49.0'	30.3	M	19	-
102	VI-7	1115	17°24.0'	101°25.0'	29.6	N	0	-
103	"	1438	17°07.0'	100°59.0'	29.9	N	0	34.43
104	"	1730	17°03.0'	101°26.0'	29.7	N	0	-
105	VI-8	0030	16°36.0'	101°50.0'	30.0	M	17	34.40
106	"	0400	16°19.0'	102°12.0'	29.7	M	16	34.40
107	"	1140	17°39.5'	101°44.5'	29.4	N	0	-
108	"	1425	17°50.0'	102°21.5'	28.4	C	16	33.75
109	"	1800	17°56.0'	102°48.0'	28.5	N	0	-
110	"	2300	17°36.0'	103°08.0'	29.5	M	20	34.43
111	VI-9	0240	17°15.0'	103°25.0'	29.3	M	14	34.25
112	"	0700	16°54.0'	103°41.0'	28.8	M	28	-
117	VI-12	0100	16°18.0'	104°14.0'	28.4	M	33	34.54

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS (cont.)

Slide Number	Date (1958)	Time (GCT)	Latitude (°N)	Longitude (°W)	Surface Temp. (°C)	Class	Surface Layer (m)	Surface Salinity (‰)
118	VI-12	0545	16°37.0'	104°36.5'	28.0	M	20	34.41
119	"	0825	16°40.0'	105°07.0'	27.4	M	18	34.15
120	"	1200	17°03.0'	105°36.0'	27.4	M	39	34.16
121	"	1530	17°27.0'	105°22.0'	27.3	M	36	34.54
122	"	1900	17°51.0'	105°08.5'	28.3	M	34	-
123	VI-13	0140	18°18.0'	104°45.0'	28.6	C	48	34.50
124	"	0510	18°44.0'	104°21.0'	28.1	M	20	34.41
125	"	0930	19°03.0'	104°45.0'	29.0	M	20	34.43
126	"	1352	19°20.0'	105°10.0'	29.0	M	22	34.49
127	"	1830	19°01.0'	105°34.5'	28.5	C	23	-
128	"	2340	18°41.5'	106°00.0'	28.5	M	35	34.61
129	VI-14	0315	18°28.0'	106°28.0'	27.8	C	36	34.56
130	"	0705	18°11.0'	106°55.0'	27.1	M	22	34.67
131	"	1145	18°38.0'	107°12.5'	26.0	M	45	34.60
132	"	1520	19°07.0'	107°26.0'	26.8	C	33	34.56
133	"	1950	19°37.0'	107°37.0'	27.9	M	27	-
134	VI-15	0048	20°02.0'	107°41.0'	27.9	M	25	34.67
135	"	0332	20°15.0'	107°14.0'	27.7	M	22	34.69
136	"	0810	20°26.0'	106°47.0'	28.9	M	20	34.90
137	"	1150	20°37.0'	106°20.0'	28.1	M	21	34.96
138	"	1545	20°50.0'	105°59.0'	28.4	M	17	34.60
139	"	1740	21°05.0'	106°16.0'	28.8	C	20	-
140	"	2320	21°22.0'	106°36.0'	29.3	M	20	35.02
142	VI-16	0700	21°36.0'	106°44.0'	28.9	N	0	34.97
142-1	"	1000	21°47.0'	107°10.0'	29.0	M	20	34.96
142-2	"	1300	21°58.5'	107°41.0'	28.4	M	22	34.98
142-3	"	1600	22°11.5'	108°15.0'	27.9	M	16	35.09
143	"	1730	22°18.0'	108°32.0'	27.7	M	20	-
143-1	"	2200	22°24.0'	108°44.5'	27.3	M	13	35.16
143-2	VI-17	0100	22°35.0'	109°15.0'	26.8	N	0	34.99
143-3	"	0415	22°45.0'	109°45.0'	25.0	M	20	34.90
144	"	0705	23°00.0'	110°15.0'	24.4	N	0	34.58
144-1	"	1300	23°25.0'	110°50.0'	22.1	N	0	34.40
144-2	"	1600	23°44.0'	111°18.0'	22.2	N	0	34.42
145	"	1715	23°52.0'	111°30.0'	22.4	N	0	-
145-1	"	2200	24°11.0'	111°47.0'	19.5?	N	0	-
145-2	VI-18	0100	24°29.0'	112°06.0'	16.6?	N	0	34.38
145-3	"	0400	25°00.0'	112°34.0'	20.9	N	0	34.13
146	"	0705	25°23.0'	112°57.5'	20.1	M	15	33.93
146-1	"	1005	25°36.0'	113°11.0'	19.7	N	0	33.94
146-2	"	1300	25°58.5'	113°34.5'	19.6	N	0	33.89
146-3	"	1600	26°26.0'	113°58.0'	17.6	M	18	33.80
147	"	1730	26°38.0'	114°10.0'	16.1	N	0	-
147-1	"	2200	26°50.0'	114°20.0'	16.1	N	0	33.64
147-3	VI-19	0400	27°34.0'	115°04.5'	16.1	N	0	33.68
148	"	0705	27°58.0'	115°27.0'	15.8	N	0	33.68

SUMMARY OF SURFACE CURRENT (GEK) OBSERVATIONS

(Non-hyphenated fix numbers refer to station positions. Hyphenated numbers refer to observations between stations; e.g., 35-7 signifies 7th fix after Station 35.)

Current Fix No.	Date (1958)	Latitude (°N)	Longitude (°W)	Direction (°T)	Velocity (cm/sec)	Current Fix No.	Date (1958)	Latitude (°N)	Longitude (°W)	Direction (°T)	Velocity (cm/sec)
27-1	V-4	10°22'	107°05'	296	25.1	37-3	V-9	4°35'	95°52'	228	11.9
						37-4	"	4°21'	95°52'	226	10.8
28-1	"	10°23'	106°22'	245	34.2						
28-2	"	10°22'	105°55'	284	33.5	45-1	V-11	6°53'	94°23'	131	41.7
28-3	"	10°18'	105°27'	277	27.3	45-2	"	6°51'	93°51'	130	31.9
						45-3	"	7°03'	93°21'	125	46.9
29-1	V-5	10°20'	104°50'	266	20.5	45-4	"	7°18'	92°55'	137	41.3
29-2	"	10°17'	104°17'	266	35.5						
						46-1	V-12	7°34'	92°22'	219	29.1
30-1	"	10°15'	103°50'	243	21.8	46-2	"	7°49'	91°55'	248	22.1
30-2	"	10°13'	103°21'	260	12.8	46-3	"	7°59'	91°36'	259	38.5
30-3	"	10°12'	102°53'	026	44.6						
30-4	"	10°11'	102°20'	016	27.0	47-1	"	8°25'	91°10'	207	25.8
						47-2	"	8°44'	90°46'	198	22.0
31-1	V-6	10°16'	101°38'	072	28.9	47-3	"	9°02'	90°20'	231	31.6
31-2	"	10°12'	101°04'	102	23.3						
						48-1	V-13	9°23'	89°50'	191	32.5
32-1	"	10°08'	100°25'	213	27.1	48-2	"	9°44'	89°22'	172	23.0
32-2	"	10°04'	99°54'	206	34.2						
32-3	"	9°59'	99°21'	206	18.0	49-1	"	9°34'	89°12'	257	64.0
32-4	"	9°55'	98°48'	170	26.1	49-2	"	9°26'	89°08'	247	75.1
						49-3	V-14	9°17'	89°04'	247	62.3
33-1	V-7	9°52'	98°09'	083	12.3	49-4	"	9°12'	89°01'	259	52.3
33-2	"	9°48'	97°37'	345	9.4	49-5	"	8°45'	88°48'	303	4.6
						49-6	"	8°04'	88°22'	119	62.0
34-1	"	9°47'	97°05'	041	7.5						
34-2	"	9°46'	96°35'	300	21.3	50-1	"	7°34'	87°56'	089	68.6
34-3	"	9°44'	96°06'	298	26.9	50-2	"	6°59'	87°42'	089	78.4
						50-3	"	6°33'	87°31'	061	47.2
35-1	V-8	9°33'	96°08'	320	23.2	50-4	"	6°02'	87°19'	040	18.1
35-2	"	9°27'	96°08'	326	35.8						
35-3	"	9°12'	96°07'	339	40.8	56-1	V-16	5°30'	86°25'	197	8.8
35-4	"	9°00'	96°07'	337	27.4	56-2	"	5°31'	85°50'	113	8.1
35-5	"	8°47'	96°07'	354	23.7	56-3	"	5°32'	85°16'	170	16.1
35-6	"	8°34'	96°06'	346	32.1						
35-7	"	8°18'	96°06'	024	31.5	57-1	V-17	5°32'	84°25'	045	22.5
35-8	"	8°04'	96°04'	031	47.2	57-2	"	5°34'	83°50'	108	24.6
35-9	"	7°51'	96°03'	036	44.6	57-3	"	5°34'	83°28'	157	40.0
35-10	"	7°38'	96°01'	067	41.0						
35-11	"	7°25'	95°59'	047	45.2	58-1	"	5°33'	83°18'	157	27.4
35-12	"	7°13'	95°57'	042	39.2	58-2	"	5°34'	82°46'	110	26.4
35-13	"	7°01'	95°56'	030	42.9	58-3	"	5°35'	82°12'	176	19.1
35-14	"	6°49'	95°56'	024	44.5	58-4	"	5°34'	81°38'	178	46.0
35-15	"	6°37'	95°55'	002	47.2						
						59-1	V-18	5°32'	80°53'	090	37.1
36-1	V-9	6°22'	95°54'	040	41.1	59-2	"	5°32'	80°20'	064	36.3
36-2	"	6°08'	95°53'	049	35.2	59-3	"	5°31'	79°58'	012	51.2
36-3	"	5°56'	95°53'	025	45.4						
36-4	"	5°43'	95°53'	035	22.0	60-1	"	5°35'	79°45'	355	35.7
36-5	"	5°29'	95°53'	023	13.9	60-2	"	5°37'	79°13'	010	43.9
36-6	"	5°12'	95°53'	324	22.8	60-3	"	5°37'	78°39'	351	25.5
						60-4	"	5°31'	78°05'	011	22.0
37-1	"	5°01'	95°51'	228	15.6						
37-2	"	4°48'	95°52'	205	10.6	61-1	V-19	5°28'	77°47'	053	12.5

SUMMARY OF SURFACE CURRENT (GEK) OBSERVATIONS (cont.)

Current Fix No.	Date (1958)	Latitude (°N)	Longitude (°W)	Direction (°T)	Velocity (cm/sec)	Current Fix No.	Date (1958)	Latitude (°N)	Longitude (°W)	Direction (°T)	Velocity (cm/sec)
72-1	V-25	9°52'	86°26'	044	20.5	101	VI-6	15°35'	100°49'	327	39.8
72-2	"	10°11'	86°54'	013	47.7						
72-3	"	10°30'	87°22'	259	62.1	103	VI-7	17°07'	100°59'	335	18.2
						104	"	17°03'	101°26'	019	49.8
73-1	V-26	10°58'	88°02'	272	23.2						
73-2	"	11°14'	88°26'	254	65.9	110	VI-8	17°36'	103°08'	007	18.2
73-3	"	11°25'	88°42'	262	103.0	111	"	17°15'	103°25'	023	49.3
74-1	"	11°37'	89°00'	324	51.9	118	VI-11	16°37'	104°36'	228	60.8
74-2	"	11°58'	89°30'	024	67.2	119	VI-12	16°40'	105°07'	199	47.2
74-3	"	12°17'	89°59'	334	20.4	120	"	17°03'	105°22'	230	30.6
						121	"	17°27'	105°22'	321	42.6
75-1	V-27	12°42'	90°34'	271	20.3						
75-2	"	13°04'	91°05'	247	26.5	123	"	18°18'	104°45'	078	38.5
75-3	"	13°13'	91°19'	283	19.3	124	"	18°44'	104°21'	153	9.5
						125	VI-13	19°03'	104°45'	085	23.8
76-1	"	13°21'	91°32'	217	372.0	126	"	19°20'	105°10'	010	33.7
76-2	"	13°37'	91°55'	132	16.3	127	"	19°01'	105°34'	163	30.8
76-3	"	13°55'	92°22'	131	26.2	128	"	18°41'	106°00'	104	7.2
						129	"	18°28'	106°28'	189	21.8
77-1	V-28	14°09'	93°26'	297	26.2	130	"	18°11'	106°55'	245	37.6
						131	VI-14	18°38'	107°12'	312	58.3
79-1	"	14°57'	93°50'	033	31.0						
80-1	"	15°07'	93°54'	049	31.4	133	"	19°37'	107°37'	002	6.8
81-1	V-29	15°20'	94°39'	103	45.3	134	"	20°02'	107°41'	290	4.6
82-1	"	15°36'	94°55'	211	66.0	135	"	20°15'	107°14'	132	52.3
83-1	"	15°02'	94°56'	185	60.6	136	VI-15	20°26'	106°47'	313	33.4
						137	"	20°37'	106°20'	176	42.0
84-1	"	14°34'	94°58'	039	3.1	138	"	20°50'	105°59'	348	20.1
84-2	"	14°15'	94°59'	069	43.1	139	"	21°05'	106°16'	014	11.2
						140	"	21°22'	106°36'	325	27.5
85-1	V-30	14°11'	95°19'	232	38.7						
85-2	"	14°13'	95°49'	245	51.8	142-1	VI-16	21°42'	106°58'	094	41.4
						142-2	"	21°56'	107°33'	345	12.5
86-1	"	13°51'	95°56'	248	44.0	142-3	"	22°09'	108°06'	318	11.4
87-1	"	14°14'	96°28'	254	129.0	143-1	"	22°21'	108°37'	082	1.0
87-2	V-31	14°46'	96°43'	310	9.5	143-2	"	22°33'	109°07'	040	21.7
						143-3	"	22°43'	109°38'	094	24.4
88-1	"	15°12'	96°28'	117	58.4	143-4	"	22°58'	110°12'	187	46.1
89-1	"	15°13'	95°32'	086	39.1						
90-1	VI-1	14°50'	95°21'	168	31.8	144-1	VI-17	23°19'	110°43'	155	24.8
91-1	"	14°38'	95°26'	187	22.0	144-2	"	23°39'	111°11'	186	38.2
92-1	"	14°29'	96°15'	232	68.6						
93-1	"	14°04'	96°41'	247	105.3	145-1	"	24°05'	111°41'	265	14.7
						145-2	"	24°54'	112°28'	120	32.7
94-1	"	14°05'	97°05'	240	85.0	145-3	"	25°18'	112°51'	037	37.9
94-2	VI-2	14°30'	97°33'	350	45.0						
94-3	"	14°56'	98°00'	360	15.1	146-1	VI-18	25°30'	113°05'	157	26.6
94-4	"	15°19'	98°24'	290	14.8	146-2	"	25°52'	113°29'	150	50.1
95-1	"	16°18'	99°29'	133	39.0	147-1	"	26°44'	114°14'	149	44.9
						147-2	"	27°06'	114°36'	146	81.9
99	VI-6	16°25'	100°20'	173	14.6	147-3	"	27°28'	114°58'	134	50.0
100	"	16°04'	100°44'	312	51.5	147-4	"	27°52'	115°22'	194	29.7

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